

DVP-CX875P

RMT-D149A

SERVICE MANUAL

US Model
Canadian Model

Self Diagnosis
Supported model



SPECIFICATIONS

System

Laser: Semiconductor laser

Signal format system: NTSC

Audio characteristics

Frequency response: DVD VIDEO (PCM 96 kHz): 2 Hz to 44 kHz (± 1.0 dB)/DVD VIDEO (PCM 48 kHz): 2 Hz to 22 kHz (± 0.5 dB)/CD: 2 Hz to 20 kHz (± 0.5 dB)

Signal-to-noise ratio (S/N ratio): 115 dB (AUDIO OUTPUT L/R 1/2 jacks only)

Harmonic distortion: 0.003 %

Dynamic range: DVD VIDEO: 103 dB/CD: 99 dB

Wow and flutter: Less than detected value ($\pm 0.001\%$ W PEAK)

When you play PCM sound tracks with a 96 kHz sampling frequency, the output signals from the DIGITAL OUTPUT (COAXIAL or OPTICAL) jack are converted to 48 kHz sampling frequency.

Outputs

(Jack name: Jack type/Output level/Load impedance)

AUDIO OUTPUT L/R 1/2: Phono jack/ 2 Vrms/10 kilohms

DIGITAL OUTPUT (OPTICAL): Optical output jack/-18 dBm (wave length: 660 nm)

DIGITAL OUTPUT (COAXIAL): Phono jack/0.5 Vp-p/75 ohms

COMPONENT VIDEO OUTPUT (Y, P_B, P_R): Phono jack/Y: 1.0 Vp-p/P_B, P_R: interlace = 0.648 Vp-p, progressive = 0.7 Vp-p/75 ohms

VIDEO OUTPUT 1/2: Phono jack/ 1.0 Vp-p/75 ohms

S VIDEO OUTPUT 1/2: 4-pin mini DIN/ Y: 1.0 Vp-p/C: 0.286 Vp-p/75 ohms

S-LINK (CONTROL S IN): Mini jack

General

Power requirements:

120 V AC, 60 Hz

Power consumption: 17 W

Dimensions (approx.): 430 × 158 × 415 mm (17 × 6 1/4 × 16 3/8 in.) (width/height/depth) incl. projecting parts

Mass (approx.): 6.9 kg (15 lb 3 oz)

Operating temperature: 5 °C to 35 °C (41 °F to 95 °F)

Operating humidity: 25 % to 80 %

Supplied accessories

Check that you have the following items:

- Audio/video cord (pinplug × 3 ↔ pinplug × 3) (1)
- Remote commander (remote) (1)
- Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

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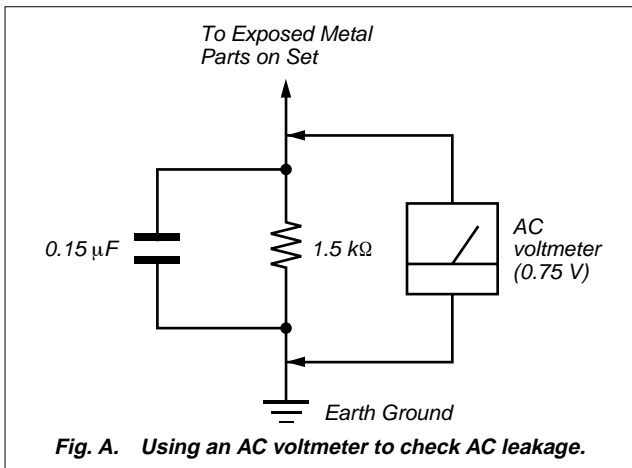
CD/DVD PLAYER

SONY®

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are “pinched” or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the line cord for cracks and abrasion. Recommend the replacement of any such line cord to the customer.
6. Check the B+ voltage to see it is at the values specified.
7. Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.



WARNING!!

WHEN SERVICING, DO NOT APPROACH THE LASER EXIT WITH THE EYE TOO CLOSELY. IN CASE IT IS NECESSARY TO CONFIRM LASER BEAM EMISSION, BE SURE TO OBSERVE FROM A DISTANCE OF MORE THAN 25 cm FROM THE SURFACE OF THE OBJECTIVE LENS ON THE OPTICAL PICK-UP BLOCK.

CAUTION:

The use of optical instrument with this product will increase eye hazard.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK \triangle OR DOTTED LINE WITH MARK \triangle ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

Unleaded solder

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.

(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size.)



: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40°C higher than ordinary solder.
Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
Soldering irons using a temperature regulator should be set to about 350°C.
Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
Unleaded solder is more viscous (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE \triangle SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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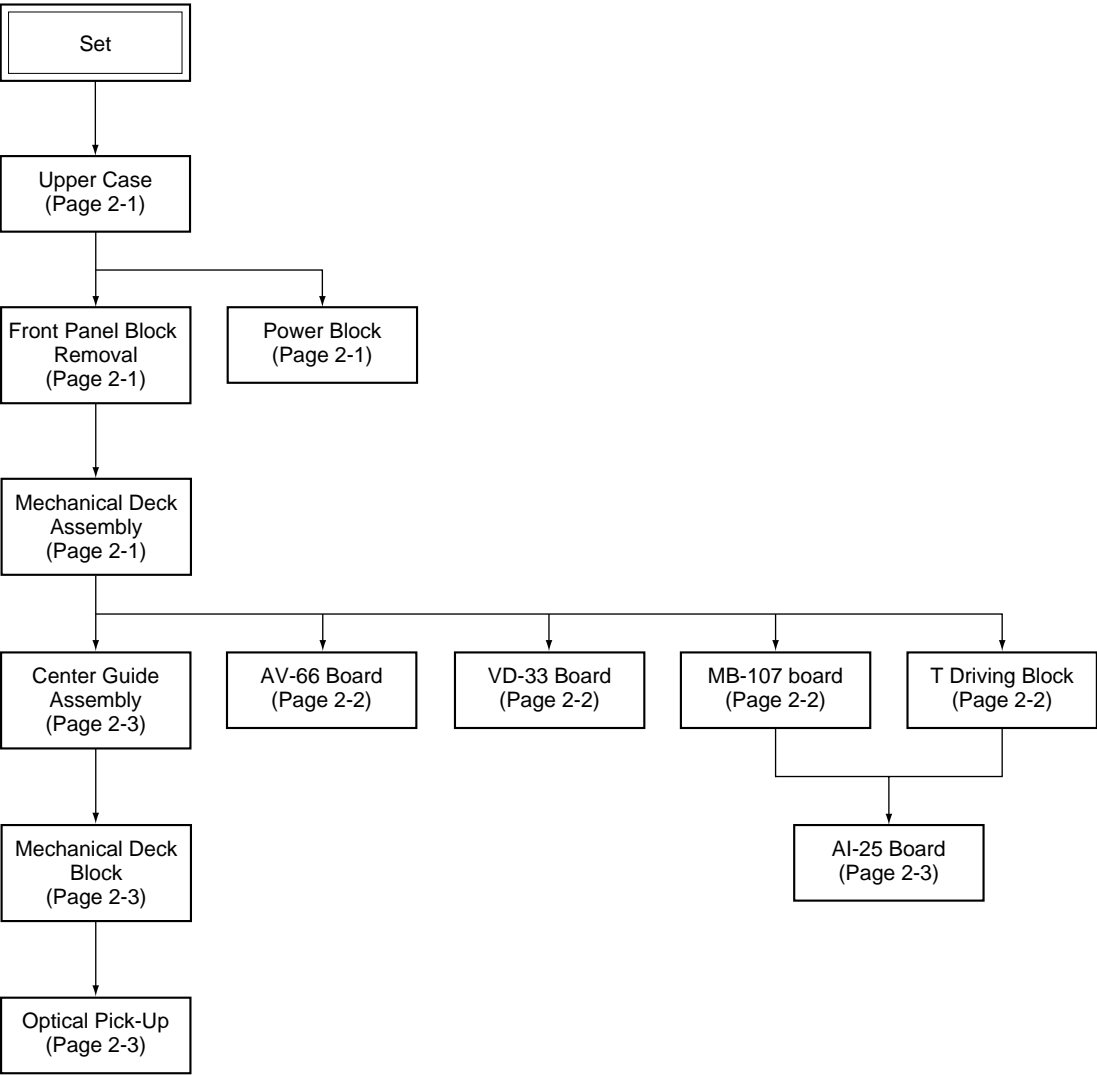
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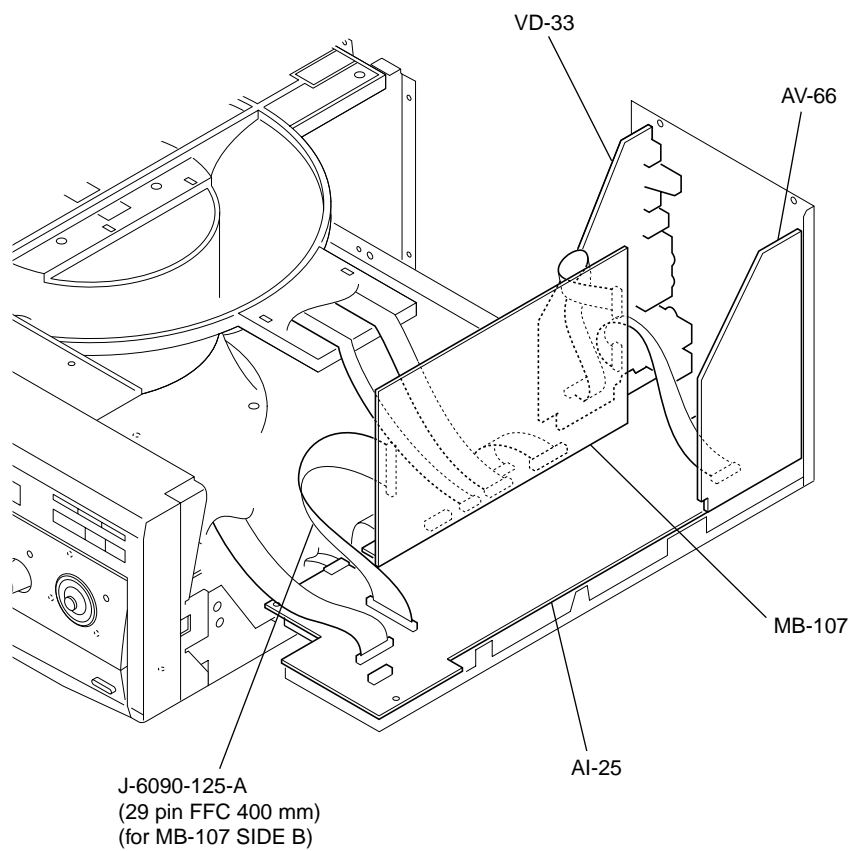
SERVICE NOTE

1. DISASSEMBLY

- This set can be disassembled in the order shown below.



2. CONNECTION OF MB-107 BOARD JIG



SECTION 1 GENERAL

This section is extracted from instruction manual (3-077-145-11).

Precautions

On safety

- Caution – The use of optical instruments with this product will increase eye hazard.
- To prevent fire or shock hazard, do not place objects filled with liquids, such as vases, on the apparatus.
- Should any solid object or liquid fall into the cabinet, unplug the player and have it checked by qualified personnel before operating it any further.

On power sources

- The player is not disconnected from the AC power source as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use the player for a long time, be sure to disconnect the player from the wall outlet. To disconnect the AC power cord, grasp the plug itself; never pull the cord.
- Should the AC power cord need to be changed, have it done at a qualified service shop only.

On placement

- Place the player in a location with adequate ventilation to prevent heat build-up in the player.
- Do not place the player on a soft surface such as a rug that might block the ventilation holes.
- Do not place the player in a location near heat sources, or in a place subject to direct sunlight, excessive dust, or mechanical shock.

On operation

- If the player is brought directly from a cold to a warm location, or is placed in a very damp room, moisture may condense on the lenses inside the player. Should this occur, the player may not operate properly. In this case, remove the disc and leave the player turned on for about half an hour until the moisture evaporates.
- When you move the player, take out any discs. If you don't, the disc may be damaged.

On adjusting volume

Do not turn up the volume while listening to a section with very low level inputs or no audio signals. If you do, the speakers may be damaged when a peak level section is played.

On cleaning

Clean the cabinet, panel, and controls with a soft cloth slightly moistened with a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On cleaning discs

Do not use a commercially available cleaning disc. It may cause a malfunction.

IMPORTANT NOTICE

Caution: This player is capable of holding a still video image or on-screen display image on your television screen indefinitely. If you leave the still video image or on-screen display image displayed on your TV for an extended period of time you risk permanent damage to your television screen. Projection televisions are especially susceptible to this.

On transporting the player

Before transporting the player, follow the procedure below to return the internal mechanisms to their original positions.

- 1 Remove all the discs from the disc slots.
- 2 Press OPEN/CLOSE to close the front cover.
Make sure that "NO DISC" appears on the front panel display.
- 3 Wait for 10 seconds, then press I/⏻ to turn off the player.
The player enters standby mode and the power indicator lights up in red.
- 4 Disconnect the AC power cord.

If you have any questions or problems concerning your player, please consult your nearest Sony dealer.

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Example of discs that the player cannot play

The player cannot play the following discs:

- All CD-ROMs (including PHOTO CDs)/CD-Rs/CD-RWs other than those recorded in the following formats:

- music CD format
- video CD format
- MP3 format that conforms to ISO9660* Level 1/Level 2, or its extended format, Joliet

- Data part of CD-Extras
- DVD-ROMs
- DVD Audio discs
- HD layer on Super Audio CDs
- * A logical format of files and folders on CD-ROMs defined by ISO (International Standard Organization).

Also, the player cannot play the following discs:

- A DVD VIDEO with a different region code.
- A disc recorded in a color system other than NTSC, such as PAL or SECAM (this player conforms to the NTSC color system).
- A disc that has a non-standard shape (e.g., card, heart).
- A disc with paper or stickers on it.
- A disc that has the adhesive of cellophane tape or a sticker still left on it.

Note

Some DVD-Rs, DVD-RWs, CD-Rs, or CD-RWs cannot be played on this player due to the recording quality or physical condition of the disc, or the characteristics of the recording device. Also, images in DVD-RW discs with CPRM* protection may not be played if they contain a copy protection signal. "Copyright lock" appears on the screen. For more information, see the operating instructions for the recording device.

Note that discs created in the Packet Write format cannot be played.

* CPRM (Content Protection for Recordable Media) is a coding technology that protects copyright for images.

Note on playback operations of DVDs and VIDEO CDs

Some playback operations of DVDs and VIDEO CDs may be intentionally set by software producers. Since this player plays DVDs and VIDEO CDs according to the disc contents the software producers designed, some playback features may not be available. Also, refer to the instructions supplied with the DVDs or VIDEO CDs.

Copyrights

This product incorporates copyright protection technology that is protected by method claims of certain U.S. patents, other intellectual property rights owned by Macrovision Corporation, and other rights owners. Use of this copyright protection technology must be authorized by Macrovision Corporation, and is intended for home and other limited viewing uses only unless otherwise authorized by Macrovision Corporation. Reverse engineering or disassembly is prohibited.

Notes about the Discs

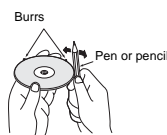
- To keep the disc clean, handle the disc by its edge. Do not touch the surface.



- Do not expose the disc to direct sunlight or heat sources such as hot air ducts, or leave it in a car parked in direct sunlight as the temperature may rise considerably inside the car.
- After playing, store the disc in its case.

To ensure stable operation

- If the front cover automatically opens and "C32" appears in the front panel display (page 98), it may be because burrs remain on the outer edge of the disc, particularly CD discs. In order to ensure stable operation, remove the burrs by rubbing the edge of the disc with the side of a pen or pencil. Check all of the discs in the two slots to the left and right of the center slot, including the center slot.



- Clean the disc with a cleaning cloth. Wipe the disc from the center out.



- Do not use solvents such as benzene, thinner, commercially available cleaners, or anti-static spray intended for vinyl LPs.

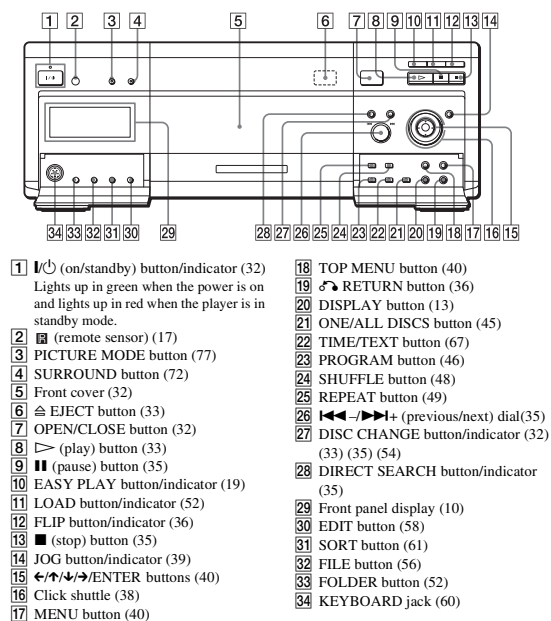
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Index to Parts and Controls

For more information, refer to the pages indicated in parentheses.

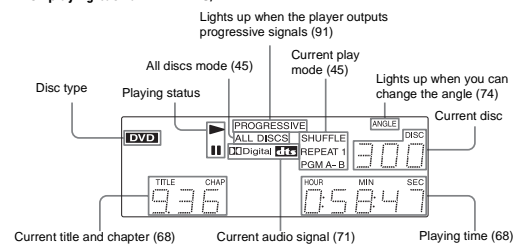
Front panel



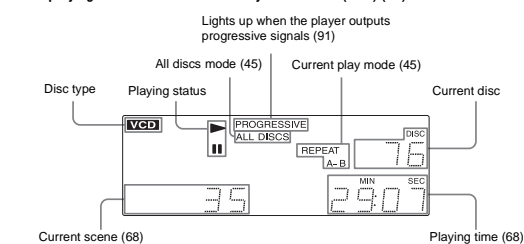
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Front panel display

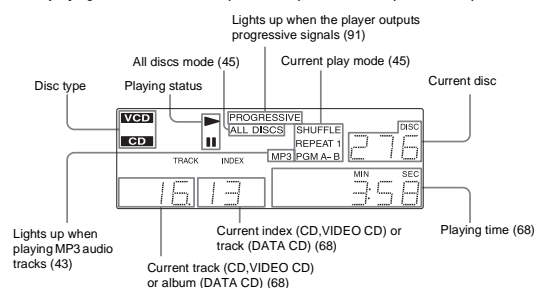
When playing back a DVD VIDEO/DVD-RW



When playing back a VIDEO CD with Playback Control (PBC) (42)

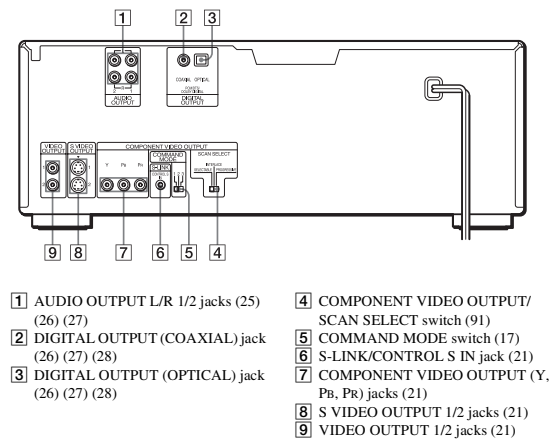


When playing back a CD, DATA CD (MP3 audio), or VIDEO CD (without PBC)



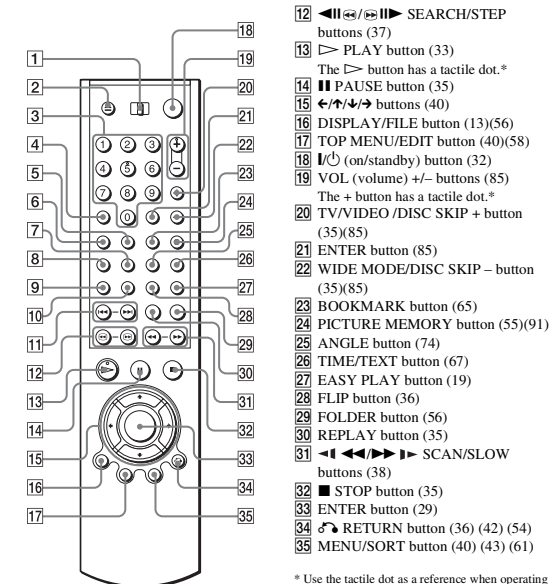
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Rear panel



11

Remote

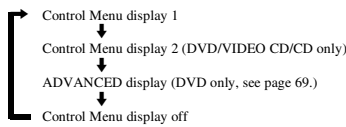


* Use the tactile dot as a reference when operating the player.

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Guide to the Control Menu Display

Use the Control Menu to select a function and to view related information. Press DISPLAY repeatedly to turn on or change the Control Menu display as follows:

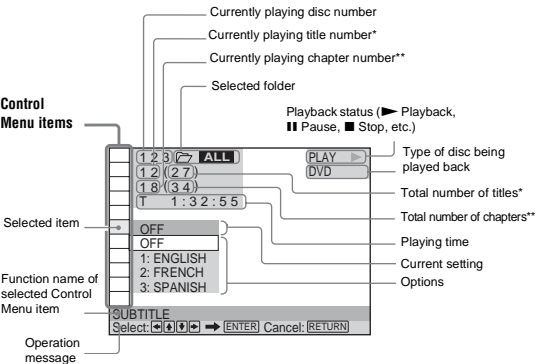


Hint
You can skip the ADVANCED display by setting "OFF" under "ADVANCED" in the Control Menu (page 69).

Control Menu

The Control Menu display 1 and 2 will show different items depending on the disc type. For details, please refer to the pages in parentheses.

Example: Control Menu display 1 when playing a DVD VIDEO



* Displays the scene number for VIDEO CDs (PBC is on), track number for VIDEO CDs/CDs, album number for DATA CDs.
** Displays the index number for VIDEO CDs/CDs, MP3 audio track number for DATA CDs.

List of Control Menu Items

| Item | Item Name, Function, Relevant Disc Type |
|------|---|
| | DISC (page 63) Selects the disc to be played. DVD-V DVD-RW VCD CD DATA CD |
| | TITLE (page 63)/SCENE (page 63)/TRACK (page 63) Selects the title, scene, or track to be played. DVD-V DVD-RW VCD |
| | CHAPTER (page 63)/INDEX (page 63) Selects the chapter or index to be played. DVD-V DVD-RW VCD |
| | ALBUM (page 63) Selects the album to be played. DATA CD |
| | TRACK (page 63) Selects the track to be played. CD DATA CD |
| | INDEX (page 63) Selects the index to be played. CD |
| | ORIGINAL/PLAY LIST (page 41) Selects the type of titles (DVD-RW) to be played, the ORIGINAL one, or an edited PLAY LIST. DVD-RW |
| | TIME/MEMO (page 63) Checks the elapsed time and the remaining playback time. Use to input the time code when searching for a scene or music. Displays the Disc Memo you entered in the edit mode of the Disc Explorer function. DVD-V VCD CD |
| | TIME/TEXT (page 63) Checks the elapsed time and the remaining playback time. Use to input the time code when searching for a scene or music. Displays the DVD/CD text or the DATA CD's track name. DVD-V DVD-RW VCD CD DATA CD |
| | AUDIO (page 71) Changes the audio setting. DVD-V DVD-RW VCD CD DATA CD |
| | SUBTITLE (page 75) Displays the subtitles. Changes the subtitle language. DVD-V DVD-RW |
| | ANGLE (page 74) Changes the angle. DVD-V |
| | TVS (page 72) Selects the surround functions. DVD-V |
| | ADVANCED (page 69) Displays the information (bit rate or layer) of the disc currently playing. DVD-V DVD-RW |
| | PARENTAL CONTROL (page 80) Set to prohibit playback on this player. DVD-V VCD CD |

→ continued

| | |
|--|---|
| | SETUP (page 88) QUICK Setup Use Quick Setup to choose the desired language of the on-screen display, the aspect ratio of the TV, and the audio output settings. CUSTOM Setup In addition to the Quick Setup setting, you can adjust other various settings. RESET Returns the settings in "SETUP" to the default setting. DVD-V DVD-RW VCD CD DATA CD |
| | ALL DISCS/ONE DISC (page 45) Selects All Discs or One Disc mode. DVD-V DVD-RW VCD CD DATA CD |
| | PROGRAM (page 46) Selects the disc, title, chapter, or track to play in the order you want. DVD-V VCD CD |
| | SHUFFLE (page 48) Plays the disc, title, chapter, or track in random order. DVD-V DVD-RW VCD CD DATA CD |
| | REPEAT (page 49) Plays the entire disc (all titles/all tracks/all albums) repeatedly or one title/chapter/track/album repeatedly. DVD-V DVD-RW VCD CD DATA CD |
| | A-B REPEAT (page 50) Specifies the parts you want to play repeatedly. DVD-V DVD-RW VCD CD |
| | BNR (page 76) Adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen. DVD-V DVD-RW VCD |
| | CUSTOM PICTURE MODE (page 77) Adjusts the video signal from the player. You can select the picture quality that best suits the program you are watching. DVD-V DVD-RW VCD |
| | DIGITAL VIDEO ENHANCER (page 78) Exaggerates the outline of the image to produce a sharper picture. DVD-V DVD-RW VCD |
| | PICTURE NAVIGATION (page 64) Divides the screen into 9 subscreens to help you find the scene you want quickly. DVD-V VCD |

Hint
The Control Menu icon indicator lights up in green → when you select any item except "OFF," "TVS," "PROGRAM," "SHUFFLE," "REPEAT," "A-B REPEAT," "BNR," "DIGITAL VIDEO ENHANCER" only. The "ANGLE" indicator lights up in green only when the angles can be changed. The "CUSTOM PICTURE MODE" indicator lights up in green when any setting other than "STANDARD" is selected. The "PICTURE NAVIGATION" indicator lights up in green when a bookmark of the disc is set in the player's memory.

Simple Start Guide
Quick Overview

A quick overview presented in this guide will give you enough information to start using the player for your enjoyment. To use the surround sound features of this player, refer to "Hookups" on page 21.

Notes

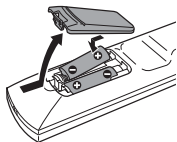
- You cannot connect this player to a TV that does not have a video input jack.
- Be sure to disconnect the power of each component before connecting.

Step 1: Unpacking

- Check that you have the following items:
- Audio/video cord (pinplug × 3 ↔ pinplug × 3) (1)
 - Remote commander (remote) (1)
 - Size AA (R6) batteries (2)

Step 2: Preparing the Remote

You can control the player using the supplied remote. Insert two Size AA (R6) batteries by matching the \oplus and \ominus ends on the batteries to the markings inside the compartment. When using the remote, point it at the remote sensor \blacksquare on the player.

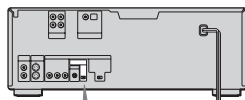
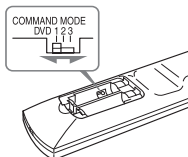


Notes

- Do not leave the remote in an extremely hot or humid place.
- Do not drop any foreign object into the remote casing, particularly when replacing the batteries.
- Do not expose the remote sensor to direct light from the sun or a lighting apparatus. Doing so may cause a malfunction.
- If you do not use the remote for an extended period of time, remove the batteries to avoid possible damage from battery leakage and corrosion.

When you have more than one Sony DVD player

If the supplied remote interferes with your other Sony DVD player, set the command mode for this player and the supplied remote to one that differs from the other Sony DVD player. The default command mode setting for this player and the supplied remote is DVD1.

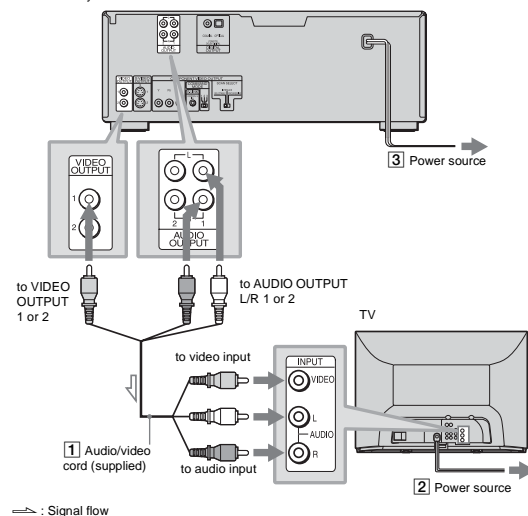


- Slide the COMMAND MODE switch on the remote to select the command mode (DVD 1, DVD 2, or DVD 3) so that the setting for the remote differs from the other DVD players. For example, if other DVD players respond to the default command mode setting for the supplied remote (DVD 1), set the remote to DVD 2 or DVD 3.
- Slide the COMMAND MODE switch on the rear of the player so it matches that of the supplied remote.

Step 3: TV Hookups

Connect the supplied audio/video cord and the power cord in the order (1)~(3) shown below. Be sure to connect the power cord last.

CD/DVD Player



To change the aspect ratio for the connected TV

Depending on the disc and the TV type (standard 4:3 screen TV or wide screen TV), the image may not fit the TV screen. If this happens, change the aspect ratio (page 90).

Hint

When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the VIDEO OUTPUT jack on the player to the TV's video input jack, and connect the AUDIO OUTPUT L/R 1/2 jacks to the TV's audio input jack.

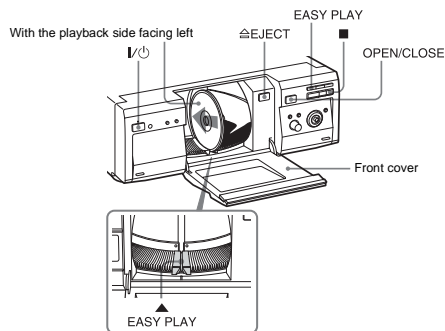
When connecting to a TV that accepts progressive (480p) format signal

You need to use the COMPONENT VIDEO OUTPUT jacks to view progressive signals. Hook up your TV using pattern \odot on page 21, and then run Quick Setup on page 29.

17

Step 4: Playing a Disc (Easy Play)

Aside from the slots with a capacity for 300 discs, this player has an EASY PLAY slot for immediate playing. The EASY PLAY disc is numbered 301. When you use the Program Play or the Disc Explorer function, or Search for a disc by slot number, enter the disc in the EASY PLAY slot as disc number 301.



- Turn on the TV.
- Press \mathbb{I}/\mathbb{O} .
- Switch the input selector on your TV so that the signal from the player appears on the TV screen.
- Press EASY PLAY.
The EASY PLAY indicator lights up and the EASY PLAY slot comes to the loading position. Then, the front cover opens.
- Insert the disc.
- Press EASY PLAY again.
The front cover closes and the EASY PLAY disc starts. "EZ" appears in the front panel display.

After Step 6

Depending on the disc, a menu may be displayed on the TV screen. If so, select the item you want from the menu and play the DVD VIDEO (page 40) or VIDEO CD disc (page 42).

To stop playing

Press \blacksquare .

To remove the disc

- Press OPEN/CLOSE.
The front cover opens.
- Press EASY PLAY.
The EASY PLAY slot comes to the loading position.
- Press \triangle EJECT.
The loading guide rises so that you can remove the disc easily.
- Remove the disc.

To turn off the player

Press \mathbb{I}/\mathbb{O} . The player enters standby mode and the power indicator lights up in red.

Hints

- To play discs in the other slots, see "Inserting Discs" on page 32 and "Playing Discs" on page 33.
- If you use a Sony 8cm CD adaptor (not supplied), you can play 8cm (3-inch) CDs with the EASY PLAY slot.

Note

Do not insert an empty 8 cm (3-inch) CD adaptor. It may damage the player.

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Hookups

Hooking Up the Player

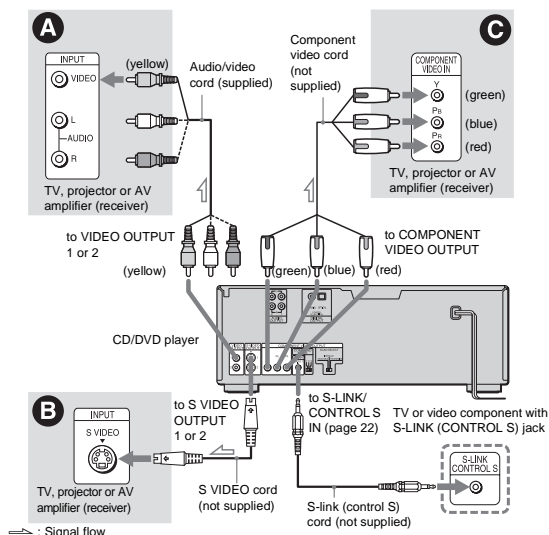
Follow Steps 1 to 4 to hook up and adjust the settings of the player. Before you start, disconnect the power cords, check that you have all of the supplied accessories, and insert the batteries into the remote (page 17).

Notes

- Plug cords securely to prevent unwanted noise.
- Refer to the instructions supplied with the components to be connected.

Step 1: Connecting the Video Cords

Connect this player to your TV monitor, projector, or AV amplifier (receiver) using a video cord. Select one of the patterns **A** through **C**, according to the input jack on your TV monitor, projector, or AV amplifier (receiver).

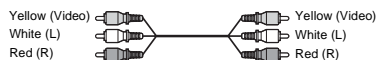


→ continued

21

A If you are connecting to a video input jack

Connect the yellow plug of the audio/video cord (supplied) to the yellow (video) jacks. You will enjoy standard quality images.



Use the red and white plugs to connect to the audio input jacks (page 25). (Do this if you are connecting to a TV only.)

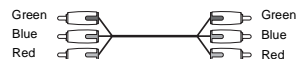
B If you are connecting to an S VIDEO input jack

Connect an S VIDEO cord (not supplied). You will enjoy high quality images.



C If you are connecting to a monitor, projector, or AV amplifier (receiver) having component video input jacks (Y/Pa/Pb)

Connect the component via the COMPONENT VIDEO OUTPUT jacks using a component video cord (not supplied) or three video cords (not supplied) of the same kind and length. You will enjoy accurate color reproduction and high quality images. If your TV accepts progressive (480p) format signals, you must use this connection and set "COMPONENT OUT" to "PROGRESSIVE" in "SCREEN SETUP" (page 91).



If your TV or video component has an S-LINK (CONTROL S) connector

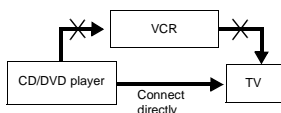
You can control the player by pointing the remote at the remote sensor on the TV or video component. This feature is convenient when you placed the player and the TV or video component away from each other. Connect the TV or video component via the S-LINK/CONTROL S jack using the S-link (control S) cord (not supplied). Refer to the instructions supplied with the component to be connected.



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Notes

- Connect the player directly to the TV. If you pass the player signals via the VCR, you may not receive a clear image on the TV screen.



- Consumers should note that not all high definition television sets are fully compatible with this product and may cause artifacts to be displayed in the picture. In the case of 480 progressive scan picture problems, it is recommended that you switches the connection to the standard definition output. If there are questions regarding your Sony TV set's compatibility with this model 480p DVD player, please contact our customer service center.

Hookups

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Step 2: Connecting the Audio Cords

Refer to the chart below to select the connection that best suits your system. Be sure to also read the instructions for the components you wish to connect.

Select a connection

Select one of the following connections, **A** through **D**.

| Components to be connected | Connection | Your setup |
|--|--------------------|-------------|
| TV • Surround effects: TVS DYNAMIC (page 73), TVS WIDE (page 73) | A (page 25) | Example |
| Stereo amplifier (receiver) and two speakers • Surround effects: TVS STANDARD (page 73) or MD deck/DAT deck • Surround effects: none | B (page 26) | Example |
| AV amplifier (receiver) having a Dolby® Surround (Pro Logic) decoder and 3 to 6 speakers • Surround effects: Dolby Surround (Pro Logic) (page 94) | C (page 27) | Example |
| AV amplifier (receiver) with a digital input jack having a Dolby Digital or DTS® decoder and 6 speakers • Surround effects: Dolby Digital (5.1 ch) (page 94), DTS (5.1 ch) (page 95) | D (page 28) | Example |

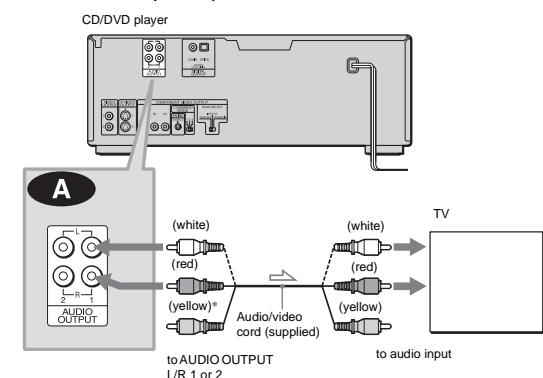
* Manufactured under license from Dolby Laboratories. "Dolby," "Pro Logic," and the double-D symbol are trademarks of Dolby Laboratories.

** "DTS" and "DTS Digital Out" are trademarks of Digital Theater Systems, Inc.

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A Connecting to your TV

This connection will use your TV speakers for sound.



→ : Signal flow

* The yellow plug is used for video signals (page 21).

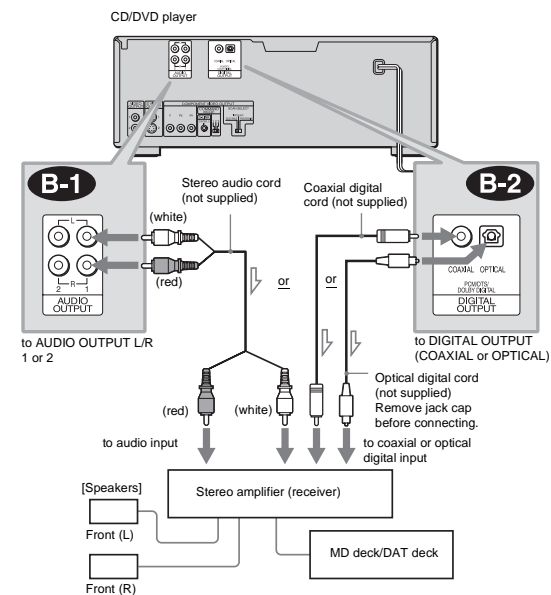
Hint

When connecting to a monaural TV, use a stereo-mono conversion cord (not supplied). Connect the AUDIO OUTPUT L/R 1 or 2 jacks to the TV's audio input jack.

Headups

B Connecting to a stereo amplifier (receiver) and 2 speakers/Connecting to an MD deck or DAT deck

If the stereo amplifier (receiver) has audio input jacks L and R only, use **B-1**. If the amplifier (receiver) has a digital input jack, or when connecting to an MD deck or DAT deck, use **B-2**. In this case, you can also connect the player directly to the MD deck or DAT deck without using your stereo amplifier (receiver).



→ : Signal flow

Hint

In connection **B-1**, you can use the supplied audio/video cord instead of using a separate stereo audio cord.

Note

If you select one of the TV's effects (page 72) while playing a disc, no sound will come from your speakers with the **B-2** connection.

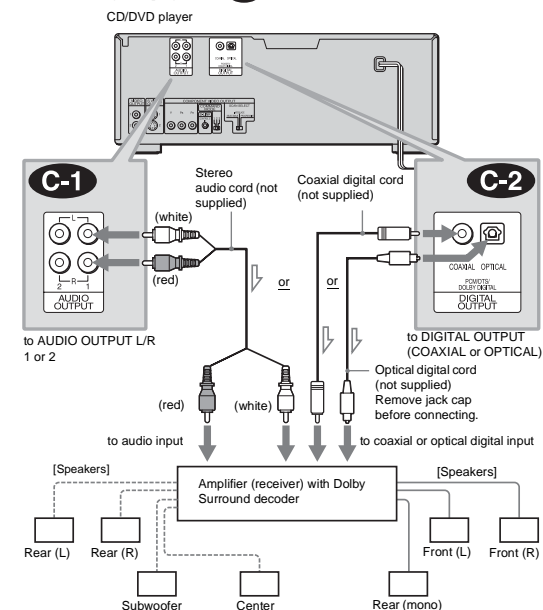
→ continued 25

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C Connecting to an AV amplifier (receiver) having a Dolby Surround (Pro Logic) decoder and 3 to 6 speakers

You can enjoy the Dolby Surround effects only when playing Dolby Surround audio or multi-channel audio (Dolby Digital) discs.

If your amplifier (receiver) has L and R audio input jacks only, use **C-1**. If your amplifier (receiver) has a digital input jack, use **C-2**.



→ : Signal flow

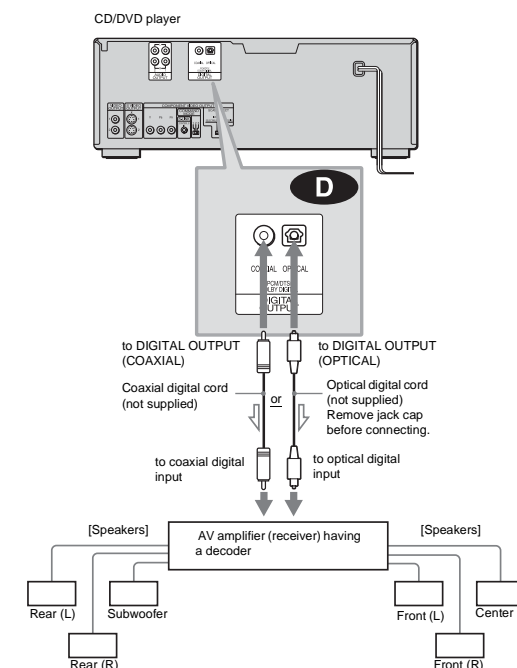
Note

When connecting 6 speakers, replace the monaural rear speaker with a center speaker, 2 rear speakers and a subwoofer.

Headups

D Connecting to an AV amplifier (receiver) with a digital input jack having a Dolby Digital, or DTS decoder and 6 speakers

This connection will allow you to use the Dolby Digital, or DTS decoder function of your AV amplifier (receiver). The surround sound effects of this player will be disabled with this connection.



→ : Signal flow

Note

After you have completed the connection, be sure to set "DOLBY DIGITAL" to "DOLBY DIGITAL" and "DTS" to "ON" in Quick Setup (page 29).

→ continued 27

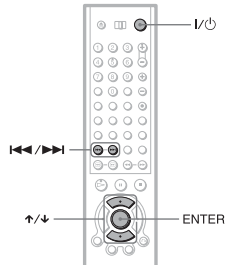
28

Step 3: Connecting the Power Cord

Plug the player's and the TV's power cords into an AC outlet.

Step 4: Quick Setup

Follow the steps below to make the minimum number of basic adjustments for using the player. To skip an adjustment, press **▶▶**. To return to the previous adjustment, press **◀◀**. The on-screen display differs depending on the player model.



1 Turn on the TV.

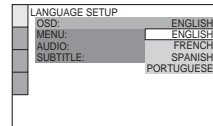
2 Press I/⏻.

3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

"Press [ENTER] to run QUICK SETUP." appears at the bottom of the screen. If this message does not appear, select "QUICK" under "SETUP" in the Control Menu to run Quick Setup (page 89).

4 Press ENTER.

The Setup Display for selecting the language used in the on-screen display appears.

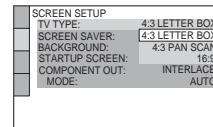


5 Press ◀/▶ to select a language.

The player uses the language selected here to display the menu and subtitles as well.

6 Press ENTER.

The Setup Display for selecting the aspect ratio of the TV to be connected appears.



14 Press ◀/▶ to select whether or not you wish to send a DTS signal to your amplifier (receiver).

Choose the item that matches the audio connection you selected on pages 26 to 28 (B through D).

B-2 C-2

• OFF (page 95)

D

• ON (only if the amplifier (receiver) has a DTS decoder) (page 95)

15 Press ENTER.

Quick Setup is finished. All connections and setup operations are complete.

Enjoying the surround sound effects

To enjoy the surround sound effects of this player or your amplifier (receiver), set the following items as described below for the audio connection you selected on pages 26 to 28 (B through D). Each of these is the default setting and does not need to be adjusted when you first connect the player. Refer to page 88 for using the Setup Display.

Audio Connection (pages 25 to 28)

A

• No additional settings are needed.

B-1 C-1

• Set "DOWNMIX" to "DOLBY

SURROUND" (page 94).

• If the sound distorts even when the volume is turned down, set "AUDIO ATT" to "ON" (page 93).

B-2 C-2 D

• Set "DOWNMIX" to "DOLBY

SURROUND" (page 94).

• Set "DIGITAL OUT" to "ON" (page 94).

Hookups

→ continued

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7 Press ◀/▶ to select the setting that matches your TV type.

◆ If you have a 4:3 standard TV

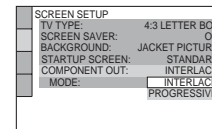
• 4:3 LETTER BOX or 4:3 PAN SCAN (page 90)

◆ If you have a wide-screen TV or a 4:3 standard TV with a wide-screen mode

• 16:9 (page 90)

8 Press ENTER.

The Setup Display for selecting the type of video signal appears.



9 Press ◀/▶ to select the type of signals you wish to output to your TV.

Select "PROGRESSIVE" only if you have made video connection C (page 21) and wish to view progressive video signals.

◆ If you have an Interlace format TV (standard TV)

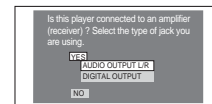
• INTERLACE (page 91)

◆ If you have a Progressive format TV

• PROGRESSIVE (page 91)

10 Press ENTER.

The Setup Display for selecting the type of jack used to connect your amplifier (receiver) appears.



11 Press ◀/▶ to select the type of jack (if any) you are using to

connect to an amplifier (receiver), then press ENTER.

Choose the item that matches the audio connection you selected on pages 25 to 28 (A through D).

A

• If you connect just a TV and nothing else, select "NO." Quick Setup is finished and connections are complete.

B-1 C-1

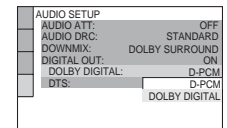
• Select "AUDIO OUTPUT L/R." Quick Setup is finished and connections are complete.

B-2 C-2 D

• Select "DIGITAL OUTPUT." The Setup Display for "DOLBY DIGITAL" appears.

12 Press ◀/▶ to select the type of Dolby Digital signal you wish to send to your amplifier (receiver).

Choose the signal that matches the audio connection you selected on pages 26 to 28 (B through D).



B-2 C-2

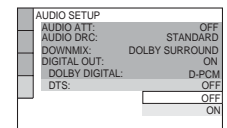
• D-PCM (page 94)

D

• DOLBY DIGITAL (only if the amplifier (receiver) has a Dolby Digital decoder) (page 94)

13 Press ENTER.

"DTS" is selected.



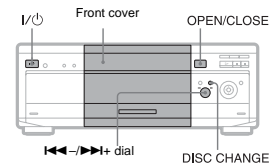
Hookups

Playing Discs

Inserting Discs DVD-V

DVD-RW VCD CD DATA CD

You can insert up to 300 discs into the disc slots in this player, not counting the EASY PLAY slot.



1 Press I/⏻.

The player turns on.

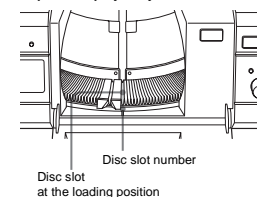
2 Press OPEN/CLOSE.

The front cover opens.

3 Press DISC CHANGE.

The DISC CHANGE indicator lights up.

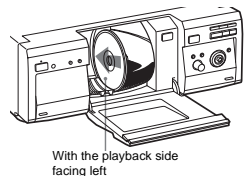
4 Turn the ◀◀-▶▶ dial until you find the disc slot where you want to insert a disc, while checking the disc slot number indicated on the front panel display or by the slot.



5 Insert a disc.

Gently place the disc all the way into the slot and do not release the disc until it is completely seated. Make sure you have

inserted the disc into each slot at a right angle to the rotary table. If the disc is not put in straight, it may damage the player or the disc.



6 Repeat Steps 4 and 5 to insert more discs.

7 Press OPEN/CLOSE.

The front cover closes. The rotary table turns and the disc slot at the loading position is set to the playing position.

Hints

- In Step 4, you can select a disc slot number by skipping 10 slots. After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER or DVD, press DISC SKIP +/- on the remote. 10 disc slots each before or after from the current disc slot number will be skipped.
- If you use a Sony 8 cm CD adaptor (not supplied), you can play 8 cm (3-inch) CDs with the EASY PLAY slot (page 19).

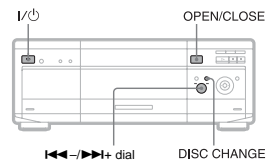
Notes

- Do not turn the turntable by hand.
- Do not reach inside of the turntable compartment. Always follow the correct steps for inserting and removing discs.
- When transporting the player, remove all discs from the player. Failure to remove the discs may cause damage to the player.
- When closing the front cover, be careful not to let anything get caught between the door and the player.

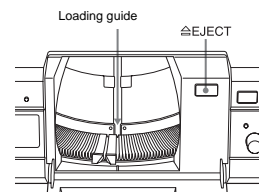
31

32

Removing discs



- 1 Press OPEN/CLOSE.
- 2 Press DISC CHANGE.
- 3 Turn the I/⏻ dial until you find the disc you want to remove, while checking the disc slot number indicated on the front panel display or by the slot.
- 4 Press EJECT.



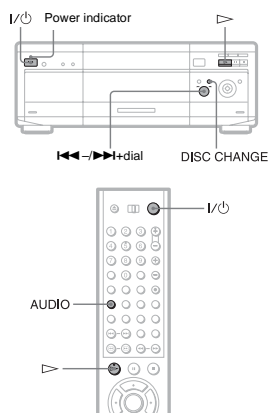
- 5 Remove the disc.
- 6 Repeat Steps 3 to 5 to remove other discs.
- 7 Press OPEN/CLOSE.

Hint
If you want to replace a disc in Step 5, wait a few seconds until the loading guide goes down before inserting the disc.

Note
The loading guide automatically goes down when you make another operation.

Playing Discs

Depending on the disc, some operations may be different or restricted.
Refer to the operating instructions supplied with your disc.



- 1 Turn on your TV.
- 2 Press I/⏻.
- 3 Switch the input selector on your TV so that the signal from the player appears on the TV screen.

When using an amplifier (receiver)
Turn on the amplifier (receiver) and select the appropriate channel so that you can hear sound from the player.

4 Press ▷.

The player starts playing the selected disc. Adjust the volume on the TV or the amplifier (receiver).
Depending on the disc, a menu may appear on the TV screen. For DVD VIDEOS, see page 40. For VIDEO CDs, see page 42.

To change the disc

Press DISC CHANGE to turn the indicator on. Then turn the I/⏻ dial until the desired disc number appears on the front panel display.
Press the I/⏻ dial to start playback.

To turn off the player

Press I/⏻. The player enters standby mode.

Hints

- You can have the player turn off automatically whenever you leave it in stop mode for more than 30 minutes. To turn on this function, set "AUTO POWER OFF" in "CUSTOM SETUP" to "ON" (page 92).
- For details on the types of MP3 audio tracks that you can play on this player or on their playback order, see "Selecting and Playing an MP3 Audio Track" on page 43.
- When you want to play a certain disc immediately, place it in the EASY PLAY slot (page 19).
- You can view and select to play a disc from a list of all the discs inserted in the player displayed on a TV screen. For details, see "Displaying the Disc Information" (page 52).

Notes on playing DTS sound tracks on a CD

- When playing DTS-encoded CDs, excessive noise will be heard from the analog stereo jacks. To avoid possible damage to the audio system, the consumer should take proper precautions when the analog stereo jacks of the player are connected to an amplification system. To enjoy DTS Digital Surround™ playback, an external 5.1-channel decoder system must be connected to the digital jack of the player.
- Set the sound to "STEREO" using the AUDIO button when you play DTS sound tracks on a CD (page 71).

- Do not play DTS sound tracks without first connecting the player to an audio component having a built-in DTS decoder. The player outputs the DTS signal via the DIGITAL OUTPUT (COAXIAL or OPTICAL) jack even if "DTS" in "AUDIO SETUP" is set to "OFF" in the Setup Display (page 95), and may affect your ears or damage your speakers.

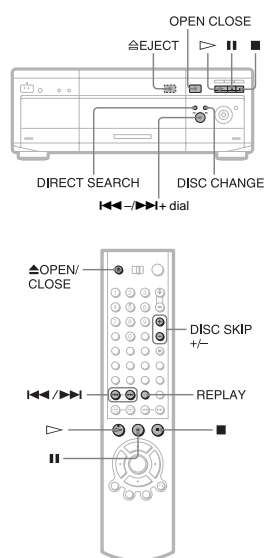
Notes on playing DVD VIDEOS with a DTS sound track

- DTS audio signals are output only through the DIGITAL OUTPUT (COAXIAL or OPTICAL) jack.
- When you play a DVD VIDEO with DTS sound tracks, set "DTS" to "ON" in "AUDIO SETUP" (page 95).
- If you connect the player to audio equipment without a DTS decoder, do not set "DTS" to "ON" in "AUDIO SETUP" (page 95). The speaker may generate a loud noise, affecting your ears or damaging your speakers.

→ continued 33

34

Additional operations



| To | Operation |
|---------------|---|
| Select a disc | On the player: Press DISC CHANGE to turn the indicator on. Then turn the I/⏻ dial until the desired disc number appears on the front panel display. Press the I/⏻ dial to start playback. |

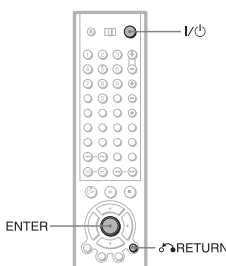
| To | Operation |
|--|---|
| Skip empty disc slots | After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER or DVD, press DISC SKIP +/- on the remote. |
| Stop | Press ■ |
| Pause | Press II |
| Resume play after pause | Press II or ▷ |
| Go to the next chapter, track, or scene in continuous play mode | On the player: Press DIRECT SEARCH to turn the indicator on. Then turn the I/⏻ dial clockwise. On the remote: Press ► |
| Go back to the previous chapter, track, or scene in continuous play mode | On the player: Press DIRECT SEARCH to turn the indicator on. Then turn the I/⏻ dial counterclockwise. On the remote: Press ◀ |
| Stop play and remove the disc | On the player: Press OPEN/CLOSE, followed by EJECT. On the remote: Press ▲OPEN/CLOSE, followed by EJECT on the player. |
| Replay the previous scene (DVD VIDEO only) | Press REPLAY |

Hint
The Replay function is useful when you want to review a scene or dialog that you missed.

Note
You may not be able to use the Replay function with some scenes.

Locking the front cover (Child Lock)

You can lock the front cover to prevent children from opening it.



When the player is in standby mode, press RETURN, ENTER, and then I/⏻ on the remote.

The player turns on and "LOCKED" appears on the front panel display. The OPEN/CLOSE and EASY PLAY buttons on the player and the ▲ and EASY PLAY buttons on the remote do not work while the Child Lock is set.

To unlock the front cover

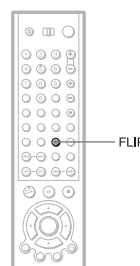
When the player is in standby mode, press RETURN, ENTER, and then I/⏻ again.

Note
Even if you select "RESET" under "SETUP" in the Control Menu (page 89), the front cover remains locked.

Playing Side B (Flip)

DVD-V DVD-RW

You can play side B without ejecting the disc to turn it over.
"Side B" is the side facing right when you insert the disc into the slot.



Press FLIP.
While side B is being played, FLIP appears on the TV.




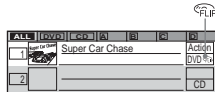
35

36

To return to side A
Press FLIP again.

Hints

- You can also flip the disc by pressing the FLIP button on the player.
- Once a disc has been flipped,  appears in the Disc Explorer (except for DVD-RWs).



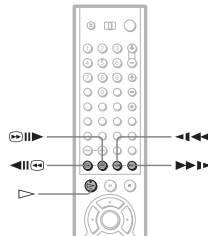
For more information about the Disc Explorer, see page 52.

Notes

- Playback does not continue from side A to side B.
- Side B contents are not played even if you select the "ALL DISCS" mode.
- Program Play, Repeat Play, Bookmark, Disc Explorer, or Shuffle Play cannot be set with side B contents.
- Playback Memory settings are not effective for side B.
- When you flip the disc, Program Play, Repeat Play, and Shuffle Play settings for side A are cancelled.

Searching for a Particular Point on a Disc (Search, Scan, Slow-motion Play, Freeze Frame)

You can quickly locate a particular point on a disc by monitoring the picture or playing back slowly.





Note

Depending on the DVD/VIDEO CD, you may not be able to do some of the operations described.

Locating a point quickly (Search)






DVD-V DVD-RW VCD CD DATA CD

During playback, keep pressing  to locate a point in the playback direction at the "FF1" speed or keep pressing  to locate a point in the opposite direction at the "FR1" speed. When you find the point you want, release the button to return to normal playback speed. The "FF1" speed playback speed is the same as the scan speed and click shuttle speed described on page 38.

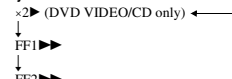
Playing Discs

Locating a point quickly by playing a disc in fast forward or fast reverse (Scan)

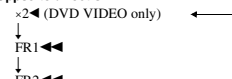
DVD-V DVD-RW VCD CD DATA CD

Press  or  while playing a disc. When you find the point you want, press  to return to normal speed. Each time you press  or  during scan, the playback speed changes. Three speeds are available. With each press the indication changes as follows:

Playback direction







Opposite direction






The "x2"/"x2" playback speed is about twice the normal speed. The "FF2"/"FR2" playback speed is faster than "FF1"/"FR1".

Watching frame by frame (Slow-motion play)




DVD-V DVD-RW VCD

You can use this function only for DVDs or VIDEO CDs. Press  when the player is in pause mode. To return to the normal speed, press . Each time you press  or  during Slow-motion play, the playback speed changes. Two speeds are available. With each press the indication changes as follows:

Playback direction

SLOW2   SLOW1 




Opposite direction (DVD only)

SLOW2   SLOW1 

The "SLOW2" speed playback speed is slower than "SLOW1" speed.

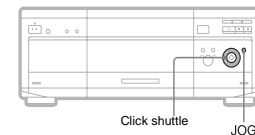
Playing one frame at a time (Freeze Frame)

DVD-V DVD-RW VCD

You can use this function only for DVDs or VIDEO CDs. When the player is in the pause mode, press  to go to the next frame. Press  to go to the preceding frame (DVD only). If you hold the button down, you can view the frames in succession. To return to normal playback, press .

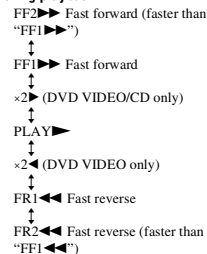
Using the click shuttle on the player (Shuttle mode)

DVD-RW VCD CD DATA CD



Turn the click shuttle on the player. The turning speed changes depending on the turning direction and degree of rotation as follows:

During playback

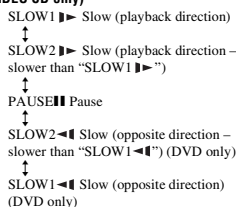


If you turn the click shuttle quickly, the playback speed goes to "FF2" or "FR2" at once.

37

38

During pause mode (DVD VIDEO/DVD-RW/VIDEO CD only)



To return to continuous play
Press .

To manually play the disc frame by frame using the click shuttle (Jog mode)

- Press JOG. The player enters the pause mode.
- Turn the click shuttle.

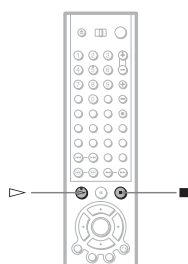
Depending on the turning speed, playback goes to frame-by-frame playback in the direction that the click shuttle is turned. Turn the click shuttle clockwise to go forward, and counter clockwise to rewind (DVD only). If you turn the click shuttle at a constant speed for a while, the playback speed goes to slow or normal.

To return to continuous play
Press .

To turn off the Jog mode
Press JOG again so that the indicator turns off.

Resuming Playback from the Point Where You Stopped the Disc (Resume Play/Multi-disc Resume)


The player remembers the point where you stopped the disc.





Playing Discs

Resuming playback for the current disc (Resume Play)



DVD-RW VCD CD DATA CD

The player remembers the point where you stopped the disc even if the player enters standby mode by pressing .

- While playing a disc, press  to stop playback. "RESUME" appears on the front panel display.

- Press . The player starts playback from the point where you stopped the disc in Step 1.

Hint

To play from the beginning of the disc, press  twice, then press .

Notes



- The point where you stopped playing is cleared when:
 - you change the play mode.
 - you change the settings on the Setup Display.
 - you open the front cover.
 - you change the slot.
 - you disconnect the power cord.
- When playing a DATA CD, the point where you stopped playing is cleared when the player enters standby mode.
- This function is not available for Program Play or Shuffle Play.
- This function may not work with some discs.

Storing the point where you stopped the disc (Multi-disc Resume)

DVD-V VCD

You can use this function only for discs played in the EASY PLAY slot (page 19). The player stores the point where you stopped the disc and resumes playback from the same point the next time you insert the same disc. The player remembers the stopped point of the disc even after you play other discs in the EASY PLAY slot. Resume playback points for up to 6 different DVD VIDEO/VIDEO CD discs remain in memory even if you disconnect the power cord. When you store a resume playback point for the 7th disc, the resume playback point for the first disc is deleted.

Hints

- To play from the beginning of the disc, press  twice, then press .
- To turn off the Multi-disc Resume function, set "MULTI-DISC RESUME" in "CUSTOM SETUP" to "OFF" (page 93). Playback restarts at the resume point only for the currently loaded disc.

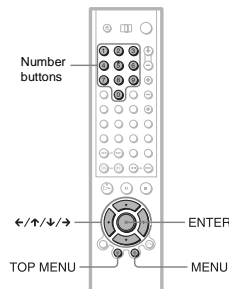
Notes


- This function is not available when playing side B of double-sided discs.
- This function may not work with some discs.

Using the DVD's Menu

DVD-V

A DVD is divided into long sections of a picture or a music feature called "titles." When you play a DVD which contains several titles, you can select the title you want using the TOP MENU button. When you play DVDs that allow you to select items such as the language for the subtitles and the language for the sound, select these items using the MENU button.



- Select a disc (page 35).
- Press TOP MENU or MENU. The disc's menu appears on the TV screen. The contents of the menu vary from disc to disc.
- Press  or the number buttons to select the item you want to play or change.
- Press ENTER.

Hint

You can also display the disc's menu by pressing the TOP MENU or MENU button on the player.

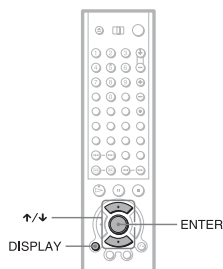
→ continued

39

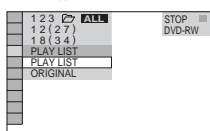
40

Selecting "ORIGINAL" or "PLAY LIST" on a DVD-RW Disc **DVD-RW**

Some DVD-RW discs in VR (Video Recording) mode have two types of titles for playback: originally recorded titles (ORIGINAL) and titles that can be created on recordable DVD players for editing (PLAY LIST). You can select the type of titles to be played.



- 1 Select a disc (page 35).
- 2 Press **DISPLAY** in stop mode.
The Control Menu appears.
- 3 Press **↑/↓** to select **ORIGINAL/PLAY LIST**, then press **ENTER**.
The options for "ORIGINAL/PLAY LIST" appear.



- 4 Press **↑/↓** to select the setting.

- **PLAY LIST**: plays the titles created from "ORIGINAL."
- **ORIGINAL**: plays the titles originally recorded.

- 5 Press **ENTER**.

To turn off the Control Menu

Press **DISPLAY** repeatedly until the Control Menu is turned off.

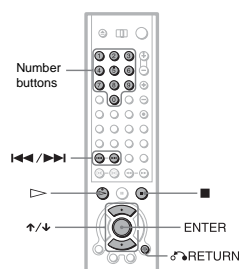
Note

Repeat Play and A-B Repeat Play do not work across "ORIGINAL" and "PLAY LIST" titles.

Playing Discs

Playing VIDEO CDs with PBC Functions (PBC Playback) **VCD**

PBC (Playback Control) allows you to play VIDEO CDs interactively by following the menu on the TV screen.



- 1 Start playing a VIDEO CD with PBC functions.
A menu appears.
- 2 Select the item number and track you want using **↑/↓** or the number buttons.
- 3 Press **ENTER**.
- 4 Follow the instructions in the menu for interactive operations.

Refer to the instructions supplied with the disc, as the operating procedure may differ depending on the VIDEO CD.

To return to the menu

Press **↶** RETURN.

Hint

To play without using PBC, press **⏮** while the player is stopped to select a track, then press **▶** or **ENTER**.

"Play without PBC." appears on the TV screen and the player starts continuous play. You cannot play still pictures such as a menu.

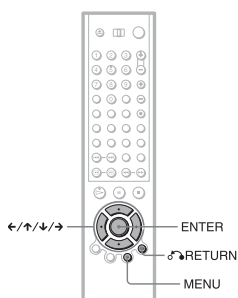
To return to PBC playback, press **■** twice then press **▶**.

Note

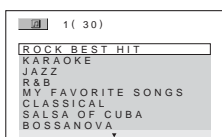
Depending on the VIDEO CD, "Press ENTER" in Step 3 may appear as "Press SELECT" in the instructions supplied with the disc. In this case, press **▶**.

Selecting and Playing an MP3 Audio Track **DATA CD**

You can play back selected tracks on DATA CDs (CD-ROMs/CD-Rs/CD-RWs) recorded in MP3 (MPEG1 Audio Layer 3) format.



- 1 Select a disc (page 35).
- 2 Press **MENU**.
The list of MP3 albums recorded on the DATA CD appears.
- 3 Select an album using **↑/↓** and press **ENTER**.
The list of tracks contained in the album appears.



- 4 Select a track using **↑/↓** and press **ENTER**.

The selected track starts playing. When a track or album is being played, its title is shaded.

To go to the next or previous page

Press **→** or **←**.

To return to the previous display

Press **↶** RETURN.

To turn off the display

Press **MENU**.

Hint

You also can display the lists with the **MENU** button on the player.

Notes

On playback

- This player can play MP3 audio tracks recorded in the following sampling frequencies: 32 kHz, 44.1 kHz, 48 kHz.
- The player cannot play audio tracks in MP3PRO format.
- If you put the extension ".MP3" to data not in MP3 format, the player cannot recognize the data properly and will generate a loud noise which could damage your speaker system.
- The playback order may be different from the edited order. See "The playback order of MP3 audio tracks" (page 44) for details.

On the list display

- Only the letters in the alphabet and numbers can be used for album or track names. Anything else is displayed as "*****".
- ID3 tags cannot be displayed.

Playing Discs

About MP3 audio tracks

You can play MP3 audio tracks on CD-ROMs, CD-Rs, or CD-RWs. However, the discs must be recorded according to ISO9660 level 1, level 2, or Joliet format for the player to recognize the tracks.

You can also play discs recorded in Multi Session.

See the instructions of the CD-R/RW device or recording software (not supplied) for details on the recording format.

To play a Multi Session CD

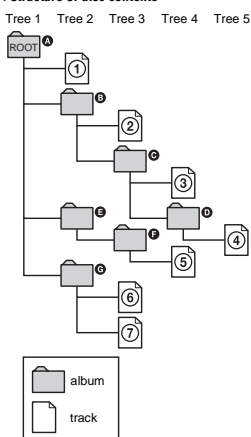
This player can play Multi Session CDs when an MP3 audio track is located in the first session. Any subsequent MP3 audio tracks, recorded in the later sessions, can also be played back.

When audio tracks and images in music CD format or Video CD format are recorded in the first session, only the first session will be played back.

The playback order of MP3 audio tracks

The playback order of albums and tracks recorded on a DATA CD is as follows.

◆Structure of disc contents



When you play a DATA CD from its beginning (page 33), the numbered tracks are played sequentially, from ① through ⑬. Any sub-albums/tracks contained within a currently selected album take priority over the next album in the same tree. (Example: ⑥ contains ① so ④ is played before ⑤.) When you press **MENU** and the list of MP3 albums appears (page 43), the albums are arranged in the following order: ④ → ⑤ → ⑥ → ⑦ → ⑧. Albums that do not contain tracks (such as album ⑤) do not appear in the list.

Hints

- If you add numbers (01, 02, 03, etc.) to the front of the track names, the tracks will be played in that order.
- Since a disc with many trees takes longer to start playback, it is recommended that you create the albums no more than two trees.

Notes

- Depending on the software you use to create the DATA CD, the playback order may differ from the illustration above.
- The playback order above may not be applicable if there are more than a total of 999 albums and tracks in the DATA CD.
- The player can recognize up to 499 albums (the player will count just albums, including albums that do not contain MP3 audio tracks). The player will not play any albums beyond the first 499 albums. Of the first 499 albums, the player will play no more than a combined total of 999 albums and tracks.

Various Play Mode Functions (Program Play, Shuffle Play, Repeat Play, A-B Repeat Play)

Shuffle Play, Repeat Play, A-B Repeat Play

You can set the following play modes:

- Program Play (page 46)
- Shuffle Play (page 48)
- Repeat Play (page 49)
- A-B Repeat Play (page 50)

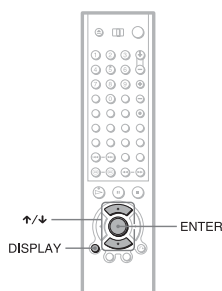
Note

The play mode is canceled when:

- you open the front cover.
- you press **ENTER** and the player enters standby mode.

Selecting the disc mode (One Disc or All Discs)

You can play one disc or all of the discs in the player. Before setting Program Play, Shuffle Play, or Repeat Play, you must select whether to apply these play modes to one disc or to all of the discs.

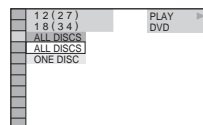


- Press **DISPLAY** twice (once for DATA CDs) during playback. The Control Menu appears.

→ continued

45

- Press **↑/↓** to select **ONE/ALL DISCS** and press **ENTER**. The options for "ONE/ALL DISCS" appear.

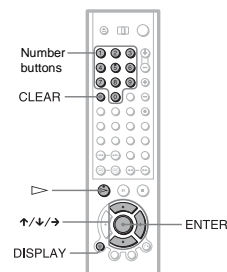


- Press **↑/↓** to select the item.
 - ALL DISCS: Continuously plays all discs.
 - ONE DISC: Plays the selected disc.
- Press **ENTER**.

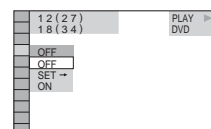
Hint
You can also select "ONE/ALL DISCS" by pressing the ONE/ALL DISCS button on the player.

Creating your own program (Program Play)

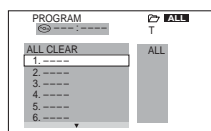
You can play the contents of a disc in the order you want by arranging the order of the titles, chapters, or tracks on the disc to create your own program. You can program up to 99 items. By selecting All Discs mode (page 45), you can create a program for all of the discs in the player.



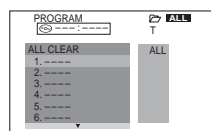
- Press **DISPLAY** twice (when playing a CD, press once). The Control Menu appears.
- Press **↑/↓** to select **PROGRAM**, then press **ENTER**. The options for "PROGRAM" appear.



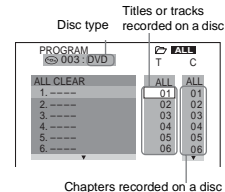
- Press **↑/↓** to select "SET →" then press **ENTER**. The display for programming appears.



- Press **→**. The player is ready to program the first disc.



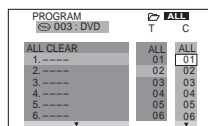
- Select the disc you want to program using the number buttons or **↑/↓**, then press **ENTER**. The cursor moves to the title or track row "T" (in this case, "01"). To select the EASY PLAY disc, press "301," then **ENTER**. "EZ" appears at the disc number.



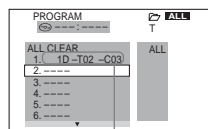
"7" appears when the player has not loaded the disc information in the memory. If an empty slot is loaded, the disc type does not appear.

- Select the title, chapter, or track you want to program.
 - When playing a DVD VIDEO

For example, select chapter "03" of title "02." Press **↑/↓** or the number buttons to select "02" under "T," then press **ENTER**.

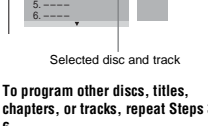


Next, press **↑/↓** or the number buttons to select "03" under "C," then press **ENTER**.



- When playing a VIDEO CD or CD

For example, select track "04." Press **↑/↓** or the number buttons to select "04" under "T," then press **ENTER**.



- To program other discs, titles, chapters, or tracks, repeat Steps 3 to 6. The programmed discs, titles, chapters, and tracks are displayed in the selected order.

→ continued

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- Press **▶** to start Program Play.

Program Play begins. When the program ends, you can restart the same program again by pressing **▶**.

To stop Program Play

Press **CLEAR**.

To turn off the display Press **DISPLAY** repeatedly until the display is turned off.

To cancel or change a program

- Follow Steps 1 to 3 of "Creating your own program (Program Play)."
- Select the program number of the disc, title, chapter, or track you want to cancel or change using **↑/↓** or the number buttons.
- Perform the following.
 - To cancel the program Press **CLEAR**.
 - To change the program Press **→** and follow Step 5 for new programming.

To cancel all the discs, titles, chapters, or tracks in the program

- Follow Steps 1 through 3 of "Creating your own program (Program Play)."
- Press **↑** and select "ALL CLEAR."
- Press **ENTER**.

Hints

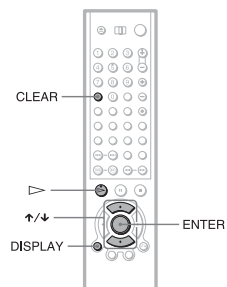
- You can set Repeat Play or Shuffle Play for the programmed titles, chapters, or tracks. During Program Play, follow the steps of "Repeat Play" (page 49) or "Shuffle Play" (page 48).
- You can also select "PROGRAM" by pressing the PROGRAM button on the player.

Note

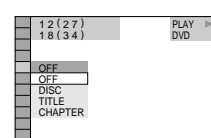
You cannot use this function with DATA CDs and DVD-RWs in VR mode.

Playing in random order (Shuffle Play)

You can have the player "shuffle" titles, chapters, or tracks. Subsequent "shuffling" may produce a different playing order. By selecting All Discs mode (page 45), you can shuffle all of the discs in the player.



- Press **DISPLAY** twice during playback. The Control Menu appears.
- Press **↑/↓** to select **SHUFFLE**, then press **ENTER**. The options for "SHUFFLE" appear.



→ continued

47

48

3 Press \uparrow/\downarrow to select the item to be shuffled.

◆ When playing a DVD VIDEO

- DISC*
- TITLE
- CHAPTER

◆ When playing a VIDEO CD or CD

- DISC*
- TRACK

◆ When playing a DVD-RW or DATA CD

- DISC*

◆ When Program Play is activated

- ON: shuffles titles, chapters, or tracks selected in Program Play.

4 Press ENTER.

* You can select "DISC" in All Discs mode only.

To return to normal play

Press CLEAR, or select "OFF" in Step 3.

Hints

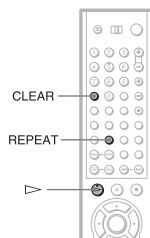
- You can set Shuffle Play while the player is stopped. After selecting the "SHUFFLE" option, press \triangleright . Shuffle Play starts.
- Up to 96 chapters in a disc can be played in random order when "CHAPTER" is selected.
- You can also select "SHUFFLE" by pressing the SHUFFLE button on the player.

Playing repeatedly (Repeat Play)

DVD-V DVD-RW VCD CD DATA CD

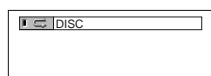
You can play all of the titles, albums or tracks on a disc or a single title, chapter, album, or track repeatedly.

You can use a combination of Shuffle or Program Play modes. By selecting All Discs mode (page 45), you can repeat all of the discs in the player.



1 Press REPEAT during playback.

The following display appears.



2 Press REPEAT repeatedly to select the item to be repeated.

◆ When playing a DVD VIDEO

- DISC: repeats all of the titles on the current disc in One Disc mode, or all of the discs in All Discs mode.
- TITLE: repeats the current title on a disc.
- CHAPTER: repeats the current chapter.

◆ When playing a DVD-RW

- DISC: repeats all of the titles on the selected type in One Disc mode, or all of the discs in All Discs mode.
- TITLE: repeats the current title on a disc.
- CHAPTER: repeats the current chapter.

◆ When playing a VIDEO CD or CD

- DISC: repeats all of the tracks on the current disc in One Disc mode, or all of the discs in All Discs mode.
- TRACK: repeats the current track.

◆ When playing a DATA CD (MP3 audio)

- DISC: repeats all of the albums on the current disc in One Disc mode, or all of the discs in All Discs mode.
- ALBUM: repeats the current album.
- TRACK: repeats the current track.

◆ When Program Play or Shuffle Play is activated

- ON: repeats Program Play or Shuffle Play.

To return to normal play

Press CLEAR, or select "OFF" in Step 2.

Hints

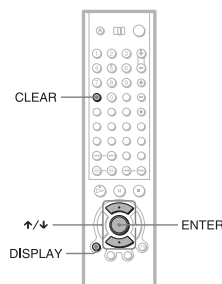
- You can set Repeat Play while the player is stopped. After selecting the "REPEAT" option, press \triangleright . Repeat Play starts.
- You can also select "REPEAT" by pressing the REPEAT button on the player.
- You can also select "REPEAT" from the Control Menu (page 13).

Repeating a specific portion (A-B Repeat Play)

DVD-V DVD-RW VCD

CD

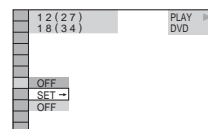
You can play a specific portion of a title, chapter or track repeatedly. (This function is useful when you want to memorize lyrics, etc.)



1 Press DISPLAY twice during playback. The Control Menu appears.

2 Press \uparrow/\downarrow to select $\boxed{\text{CD}}$ (A-B REPEAT), then press ENTER.

The options for "A-B REPEAT" appear.

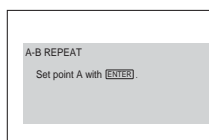


→ continued 49

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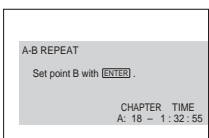
3 Press \uparrow/\downarrow to select "SET \rightarrow ," then press ENTER.

The "A-B REPEAT" setting display appears.



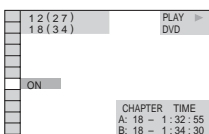
4 During playback, when you find the starting point (point A) of the portion to be played repeatedly, press ENTER.

The starting point (point A) is set.



5 When you reach the ending point (point B), press ENTER again.

The set points are displayed and the player starts repeating this specific portion.



To return to normal play

Press CLEAR.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Notes

- When you set A-B Repeat Play, the settings for Shuffle Play, Repeat Play, and Program Play are canceled.
- A-B Repeat Play does not work for titles containing still pictures on a DVD-RW in VR mode.
- A-B Repeat Play does not work across multiple titles ("ORIGINAL" or "PLAY LIST") on a DVD-RW in VR mode.

Searching for and Managing Discs (Disc Explorer)

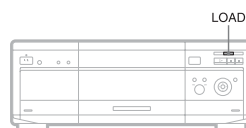
Displaying the Disc Information

DVD-V DVD-RW

VCD CD DATA CD

You can search for a disc by checking the contents of all the discs loaded in the player on the TV screen.

Loading the disc information



Press LOAD when the player is in stop or standby mode.

The player reads the disc information of all the discs and loads it into memory so that the disc type, titles and other text information can be displayed.

To cancel loading

Press \blacksquare .

Hint

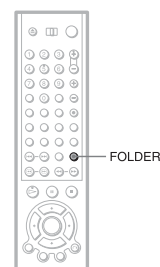
The player can load the disc information even when the power is in standby mode. Press LOAD before turning on the player.

Displaying the information of the loaded discs

You can look at the loaded disc information on the Disc Explorer.

The player has 7 folders ("ALL", "DVD", "CD", "A" to "D") and can display the Disc Explorer of each folder.

All the discs in the player are filed in the "ALL" folder. At the same time, DVDs are automatically filed in the "DVD" folder, and CDs, VIDEO CDs, and DATA CDs are filed in the "CD" folder. You can file your discs as you like in the "A" to "D" folders (page 56).



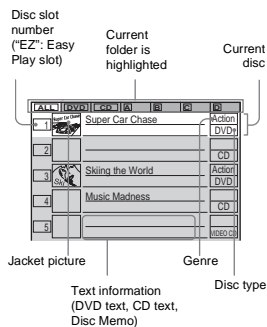
Press FOLDER.

The Disc Explorer of the "ALL" folder appears.

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Disc Explorer display



Jacket picture

The jacket picture recorded on the disc appears automatically. If there is no picture, you can capture one from the disc (page 55). If there is no jacket picture and you do not capture one, the genre picture recorded in the memory of the player is displayed if you select a genre.

Text information (DVD text, CD text or Disc Memo)

The text information (DVD text or CD text) recorded on the disc appears automatically. If no text information is recorded, you can store the text information (Disc Memo) yourself (page 58).

Genre

You can select the genre of the disc yourself (page 60).

Disc type

The disc type, such as DVD, appears automatically. If the slot does not contain a disc, the disc type row is blank. "?" appears when the player has not loaded the disc information in the memory.

Hint

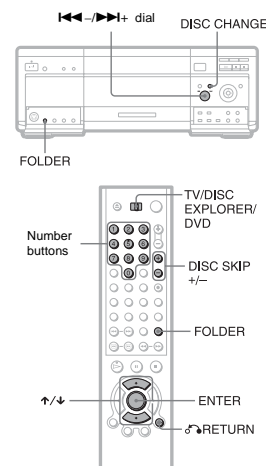
You can also display the Disc Explorer by pressing the FOLDER button on the player.

Note

Even if you have removed the disc from the player, the disc information of the disc remains on the Disc Explorer until you load the disc information again by pressing LOAD or place a new disc in the same slot and play it.

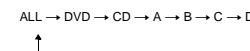
Searching for and Managing Discs (Disc Explorer)

Searching for a disc on the Disc Explorer



1 Press FOLDER repeatedly to select the folder with the disc you want to play.

With each press, the folder indication in the Disc Explorer display changes as follows:



2 Select the disc by one of the following operations.

- press \uparrow/\downarrow
- after sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER or DVD, press the number buttons and ENTER
- after sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER or DVD, press DISC SKIP +/-
- press DISC CHANGE on the player to turn the indicator on, followed by turning the \leftarrow/\rightarrow dial on the player and then pressing it.

3 Press ENTER.

The Disc Explorer disappears and playback starts.

To turn off the Disc Explorer

Press \rightarrow RETURN.

Hint

When you select the disc with the number buttons in Step 2, you can use it to jump through the Disc Explorer display.

For example, you can press number button 6 and then press ENTER to view the Disc Explorer for disc slot numbers 6 to 10, then press 11 and ENTER to view the Disc Explorer for the next five disc slots (number 11 to 15).

Notes

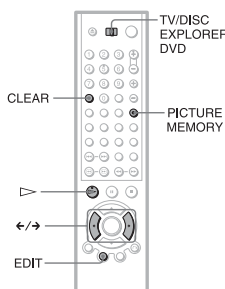
- If you press the FOLDER button during playback, the playback stops and the Disc Explorer appears. In this case, the Resume Play is not available.
- If you have inserted a disc whose disc information has not been loaded yet, you cannot select and play the disc on the Disc Explorer. The player skips the disc whose information differs from the loaded disc information, and plays the next loaded disc.
- If you load or try to play an empty slot, it appears as a blank in the Disc Explorer. You cannot select this.
- Even if the disc has a jacket picture recorded on it, the jacket picture may not appear on the Disc Explorer.

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Capturing a scene for a jacket picture DVD-V VCD

You can capture your favorite scene in a disc to create a personal jacket picture. A personalized jacket picture will make spotting the disc in the Disc Explorer easier.



1 Select a disc and play it.

2 Slide the TV/DISC EXPLORER/DVD switch to DISC EXPLORER.

3 Press PICTURE MEMORY at your favorite scene.

The scene is captured as a still image, and is set as the jacket picture for the Disc Explorer.

To erase a stored jacket picture

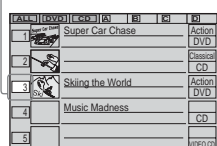
1 Perform Steps 1 and 2 in "Searching for a disc on the Disc Explorer" on page 54 and select the disc you want to edit.

2 After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press EDIT.

EDIT appears at the bottom right corner.

3 Press \leftarrow/\rightarrow to select the disc number.

Select the disc number.



4 Press CLEAR.

The stored jacket picture is deleted. If a jacket picture is recorded on the disc, it is displayed automatically.

To cancel the edit mode

Press \rightarrow RETURN until EDIT disappears from the Disc Explorer.

If you press \rightarrow RETURN again, the Disc Explorer turns off.

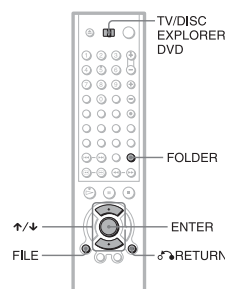
Searching for and Managing Discs (Disc Explorer)

Filing Discs in the Folder

(File Mode) DVD-V VCD CD

You can file your discs as you like in four individual folders, "A" to "D." Even if you file discs from folders "ALL," "DVD," or "CD" to folders "A" to "D," those discs are not deleted from the "ALL," "DVD," or "CD" folders. You can file up to 301 discs in one folder, and the same disc in different folders.

If you file your favorite discs in a folder ("A" to "D"), you can play only those discs, or set Program Play, Shuffle Play and Repeat Play for the discs within the folder.



For example, to file DVDs in the no.1 and no.3 slots to the "A" folder:

1 Press FOLDER.

The Disc Explorer appears.

2 After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press FILE.

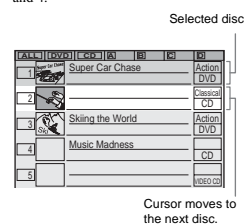
FILE appears at the bottom right corner.

3 Press \uparrow/\downarrow to select the disc (in this case, the disc in slot no.1).

4 Press ENTER.

The disc to be filed (in this case, the disc in slot no.1) is selected.

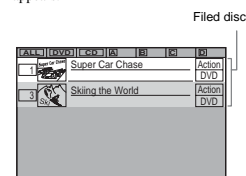
To file more than one disc, repeat Steps 3 and 4.



5 Press FOLDER repeatedly to select the "A" folder.

6 Press FILE.

FILE disappears from the Disc Explorer. Then the Disc Explorer for the "A" folder containing the selected discs appears.



To cancel the file mode

Press \rightarrow RETURN.

To turn off the Disc Explorer, press \rightarrow RETURN again.

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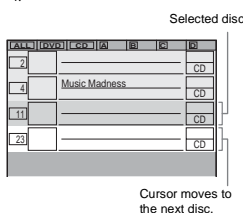
Hints

- You can sort the discs by genre or text information. The discs are listed first by slot number in the Disc Explorer. You can then sort the discs by desired genre or text and store them (page 61).
- You can also select the file mode by pressing the FILE button on the player.

Deleting discs from a folder

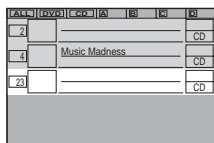
You can delete unnecessary discs from folders "A" to "D." You cannot delete discs from folders "ALL," "DVD," or "CD" unless you remove the disc from the player.

- Press **FOLDER** repeatedly to select the folder with the disc you want to delete. The Disc Explorer of the selected folder appears.
- After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press **FILE**. **FILE** appears at the bottom right corner.
- Press **↑/↓** to select the disc.
- Press **ENTER**. The disc to be deleted is selected. To delete other discs, repeat Steps 3 and 4.



5 Press CLEAR.

The disc disappears from the folder. **FILE** disappears from the Disc Explorer.



To cancel the file mode

Press **RETURN**. To turn off the Disc Explorer, press **RETURN** again.

Hint

You can also select the file mode by pressing the FILE button on the player.

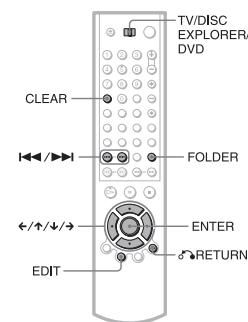
Searching for and Managing Discs (Disc Explorer)

Labeling Discs and Folders (Edit Mode)

DVD-V VCD CD

You can label the disc with a personal title of 16 characters (Disc Memo) (when DVD text or CD text is not recorded on the disc) and the folders "A" to "D" with a title of 3 characters. The Disc Memo can be anything you like, such as a title, musician's name, category or date of purchase.

You can also assign a genre label to the disc. This will help you keep your discs organized.

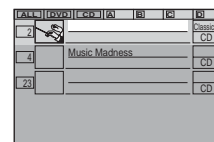


Labeling a disc or folder

1 Select the disc or folder you want to label.

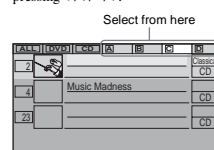
◆ To label a disc

Select the disc on the Disc Explorer (for details, see Steps 1 and 2 of "Searching for a disc on the Disc Explorer" on page 54). After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press **EDIT**. The selected disc's text only is highlighted and **EDIT** appears at the bottom right corner.



◆ To label a folder

Press **FOLDER**. After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press **EDIT**. Then, press **↑**. Select the folder you want to label by pressing **↑/↓/→/←**.

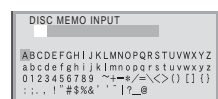


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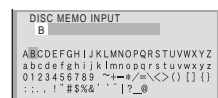
2 Press ENTER.

The "DISC MEMO INPUT" display appears when you have selected a disc. The "FOLDER NAME INPUT" display appears when you have selected a folder.



3 Select a character by pressing ↑/↓/→/←.

The selected character changes color.



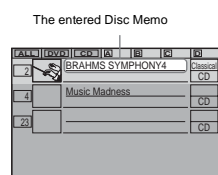
4 Press ENTER.

The selected character is input.

5 Repeat Steps 3 and 4 to input other characters.

6 When you have entered all the characters for the Disc Memo or folder name, press EDIT.

The "DISC MEMO INPUT" display or the "FOLDER NAME INPUT" display disappears and the Disc Memo or folder name is stored.



To cancel the edit mode

Press **RETURN** until **EDIT** disappears from the Disc Explorer. If you press **RETURN** again, the Disc Explorer turns off.

To erase a character

- In Step 3 of "Labeling a disc or folder" (page 58), press **←** or **→** to move the cursor to the character you want to erase.
- Press **CLEAR**.

To insert or overwrite a character

- In Step 3 of "Labeling a disc or folder" (page 58), press **←** or **→** to move the cursor to the insertion point or the character you want to correct.
- Select a correct character by pressing **↑/↓/→/←** or turning the click shuttle.

Perform the following.

◆ To insert the character

Press **ENTER**.

◆ To overwrite the character

Press **→** or **←** and move the cursor.

Hint

You can also select the edit mode by pressing the EDIT button on the player.

Note

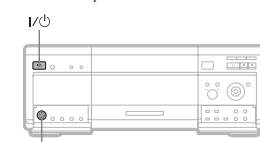
You can label up to 301 discs. When you have the player store a new disc in memory, the data for the old disc is erased.

Searching for and Managing Discs (Disc Explorer)

Labeling a disc or folder using a keyboard

To label the disc or folder, you can use an IBM compatible PC keyboard of the USA model* (not supplied) on the "DISC MEMO INPUT" or "FOLDER NAME INPUT" display.

* Power consumption must be 120mA or less.



KEYBOARD jack

1 Connect a keyboard to the KEYBOARD jack on the front panel when the player is in standby mode.

2 Press I/⏻ to turn on the player.

3 Perform Steps 1 and 2 of "Labeling a disc or folder" (page 58).

4 Input the characters on the keyboard.

5 Press ENTER on the keyboard to store the Disc Memo or folder name.

The Disc Memo or folder name is stored.

To turn off the Disc Explorer

Press **RETURN**.

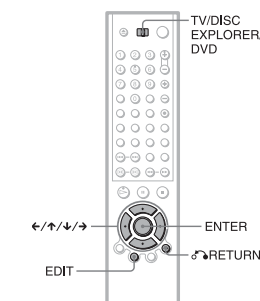
Notes

- If the cursor keys do not work correctly and you cannot complete the task using the keyboard, disconnect the keyboard. Then, reconnect it to the player and try again.
- If the keyboard is not the USA model, the characters may be input differently from those on the keys. The USA keyboard layout is shown below.



Selecting a genre

You can assign a genre to your disc.



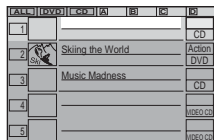
1 Select the disc on the Disc Explorer (Steps 1 and 2 of "Searching for a disc on the Disc Explorer" (page 54)).

2 After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press EDIT.

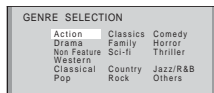
The selected disc's text only is highlighted and **EDIT** appears at the bottom right corner.

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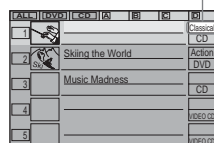


- 3 Press →, then ENTER.**
The "GENRE SELECTION" display appears.



- 4 Select the genre using ←/↑/↓/→, then press ENTER.**
The genre for the selected disc is stored in memory. If no jacket picture is recorded in the disc, or if you do not have a scene captured from that disc as a jacket picture (page 55), the genre picture in the memory of the player is displayed.

Selected genre

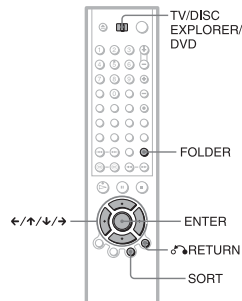


To cancel the edit mode
Press ⏮ RETURN until **EDIT** disappears from the Disc Explorer.
If you press ⏮ RETURN again, the Disc Explorer turns off.

Sorting Discs (Sort Mode)

DVD-V VCD CD

You can sort the discs in the folder by the disc slot number, text information (DVD TEXT/CD TEXT/Disc Memo) or genre.
The text information is sorted alphabetically.
In the case of genre, the selected genre comes first.



- 1 Press FOLDER repeatedly to select the folder you want to sort.**

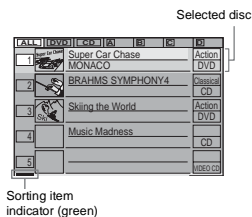
The Disc Explorer of the selected folder appears.

- 2 If you want to sort by text information or genre, select the disc which has the desired text information or the genre by pressing ↑/↓.**

Searching for and Managing Discs (Disc Explorer)

- 3 After sliding the TV/DISC EXPLORER/DVD switch to DISC EXPLORER, press SORT.**

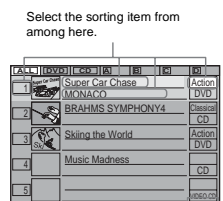
The selected disc only is highlighted and **SORT** appears at the bottom right corner.



Sorting item indicator (green)

- 4 Select the item you want to sort by pressing ←/↑/↓/→.**

You can select the disc number, text information or genre. You can also sort the text information by the text in the second line.



Sorting item indicator position when you sort by genre

- 5 Press ENTER.**

SORT disappears from the Disc Explorer.
Then the discs are sorted and re-displayed. The sorted order remains even if the power of the player is turned off.

To cancel the sort mode

Press ⏮ RETURN. **SORT** disappears from the Disc Explorer.
If you press ⏮ RETURN again, the Disc Explorer turns off.

Hints

- The discs in the same genre are sorted by numeral order of the disc slot number.
- You can also select the sort mode by pressing the SORT button on the player.

→ continued

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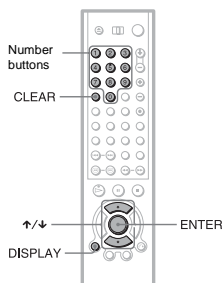
62

Searching for a Scene

Searching for a Title/Chapter/Track/Index/Scene

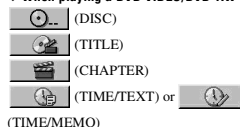
CD DATA CD

You can search a DVD by title or by chapter, and you can search a VIDEO CD/CD by track, index, or scene. As titles and tracks are assigned unique numbers on the disc, you can select the desired one by entering its number. Or, you can search for a scene using the time code.



- 1 Select a disc (page 35).**
2 Press DISPLAY during playback.
The Control Menu appears.
3 Press ↑/↓ to select the search method.

◆ When playing a DVD VIDEO/DVD-RW

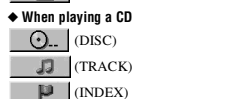
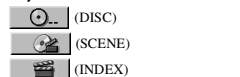


Select "TIME/TEXT" to search for a starting point by inputting the time code.

◆ When playing a VIDEO CD



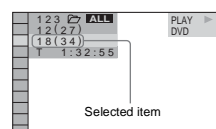
◆ When playing a VIDEO CD with PBC Playback



◆ When playing a DATA CD (MP3 audio)



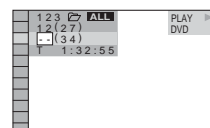
Example: when you select (CHAPTER)
"*** (**)" is selected (** refers to a number).
The number in parentheses indicates the total number of titles, tracks, indexes, scenes, etc. of the disc.



Searching for a Scene

- 4 Press ENTER.**

"** (**)" changes to "... (**)."



- 5 Select the number of the title, track, scene, time code, etc. you want using the number buttons.**

For example, to find the scene at 2 hours, 10 minutes, and 20 seconds after the beginning, select "TIME/TEXT" in Step 2 and enter "21020."

If you make a mistake
Cancel the number by pressing CLEAR, then select another number.

- 6 Press ENTER.**

The player starts playback from the selected number.

To turn off the display

Press DISPLAY repeatedly until the display is turned off.

Hint

You can display the first scene of titles, chapters or tracks recorded on the disc on a screen divided into 9 sections. You can start playback directly by selecting one of the scenes. For details, see "Searching by Scene (PICTURE NAVIGATION)" (page 64).

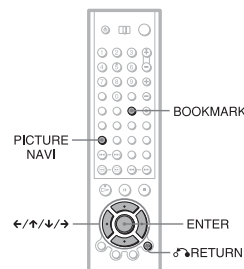
Note

You cannot search for a still picture on a DVD-RW in VR mode.

Searching by Scene

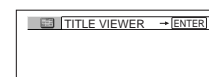
(PICTURE NAVIGATION)

You can divide the screen into 9 subsections and find the desired scene quickly.



- 1 Press PICTURE NAVI during playback.**

The following display appears.



- 2 Press PICTURE NAVI repeatedly to select the item.**

Refer to the explanations given for each item in the following sections.

- TITLE VIEWER (for DVD VIDEO only)
- CHAPTER VIEWER (for DVD VIDEO only)
- TRACK VIEWER (for VIDEO CD only)
- BOOKMARK (for DVD VIDEO, VIDEO CD only)
- STROBE PLAYBACK (for DVD VIDEO, VIDEO CD only)
- ANGLE VIEWER (for DVD VIDEO only)

→ continued

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64

3 Press ENTER.

To return to normal play
Press **RETURN**.

Hint
You can also select "PICTURE NAVIGATION"
from the Control Menu (page 13).

- Notes**
- Depending on the disc, you may not be able to select all functions.
 - The sound is muted when using this function.

Scanning the title, chapter, or track (TITLE VIEWER, CHAPTER VIEWER, TRACK VIEWER)

DVD-V VCD

You can divide the screen into 9 subscreens and display the first scene of titles, chapters, or tracks.

You can also start playback from the selected title, chapter, or track. After performing Step 3 of "Searching by Scene" above, select the scene using **←/↑/↓/→** and press ENTER.

Hint
If there are more than 9 titles, chapters, or tracks, ▼ is displayed at the bottom right of the screen.
To display the additional titles, chapters, or tracks, select the bottom right scene (located at box 9) and press **↓**. To return to the previous scene, select the top left scene (located at box 1) and press **↑**.

| | | |
|---|---|---|
| 1 | 2 | 3 |
| 4 | 5 | 6 |
| 7 | 8 | 9 |

Setting and selecting a favorite scene (Bookmark) **DVD-V VCD**

You can have the player store specific portions of the disc in memory and play them immediately whenever you want (Bookmark). Up to 9 bookmarks per disc for a total of 301 discs can be stored in memory. The bookmarked scenes are displayed on a screen divided into 9 sections.

To set a bookmark
During playback, press BOOKMARK when you find a scene to be bookmarked.

To start playback from the bookmarked scene
Select the bookmark using **←/↑/↓/→**, then press ENTER.

To reset the bookmark
Select the bookmark you want to reset using **←/↑/↓/→**, then press CLEAR.

To reset all bookmarks for the player
Select "BOOKMARK RESET →" of "CUSTOM SETUP" in the Setup Display (page 93).

Hint
The number of the bookmark you selected is displayed on the front panel display.

Note
The player can store the bookmarks of up to 301 discs in memory. When you have the player store over 301 discs in memory, bookmarks of the oldest disc are erased.

Searching for a Scene

Dividing a scene into 9 sections (STROBE PLAYBACK) **DVD-V VCD**

You can display 9 consecutive moving pictures on the screen.

When you press **II** after performing Step 3 of "Searching by Scene" (page 64), the moving pictures pause.

Displaying different angles simultaneously (ANGLE VIEWER) **DVD-V**

If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, you can display all of the angles recorded on the disc on the screen divided into 9 sections.

You can also start playback from the selected angle. After performing Step 3 of "Searching by Scene" (page 64), select the angle using **←/↑/↓/→** and press ENTER.

65

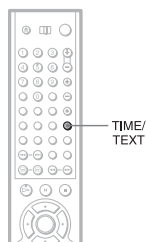
66

Viewing Information About the Disc

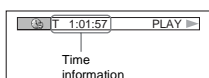
Checking the Playing Time and Remaining Time **DVD-V DVD-RW VCD CD**

DATA CD

You can check the playing time and remaining time of the current title, chapter, or track. Also, you can check the DVD/CD text or track name (MP3 audio) recorded on the disc.



1 Press TIME/TEXT during playback.
The following display appears.



2 Press TIME/TEXT repeatedly to change the time information.

The time information available depends on the disc you are playing.

◆ When playing a DVD VIDEO or DVD-RW

- T *:*:* (hours: minutes: seconds)
Playing time of the current title
- T-*:*:*
Remaining time of the current title
- C *:*:*
Playing time of the current chapter
- C-*:*:*
Remaining time of the current chapter

◆ When playing a VIDEO CD (with PBC functions)

- *:*:* (minutes: seconds)
Playing time of the current scene

◆ When playing a VIDEO CD (without PBC functions) or CD

- T *:*:* (minutes: seconds)
Playing time of the current track
- T-*:*:*
Remaining time of the current track
- D *:*:*
Playing time of the current disc
- D-*:*:*
Remaining time of the current disc

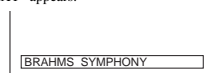
◆ When playing a DATA CD (MP3 audio)

- *:*:* (minutes: seconds)
Playing time of the current track

To check the DVD/CD text or track and album names (MP3 audio)

Press TIME/TEXT repeatedly in Step 2 to display text recorded on the DVD VIDEO/CD/DATA CD.

The DVD/CD text appears only when text is recorded in the disc. You cannot change the text. If the disc does not contain text, "NO TEXT" appears.



For DATA CDs, the track and album names of the MP3 audio track appears (page 70).

Hint
You can also check the DVD/CD text with the Disc Explorer (page 53).

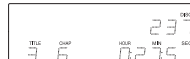
Viewing Information About the Disc

Checking the information on the front panel display

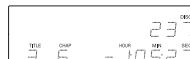
You can view the time information and text on the front panel display as well as on the TV screen. The information on the front panel display changes as follows when you change the time information on your TV screen.

When playing a DVD VIDEO or DVD-RW

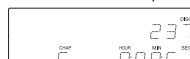
Title playing time and current disc, title and chapter number



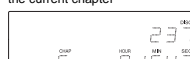
Remaining time of the current title



Playing time and number of the current chapter



Remaining time of the current chapter

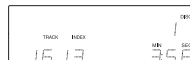


Text



When playing a VIDEO CD (without PBC functions) or CD

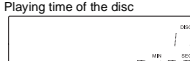
Track playing time and current disc, track and index number



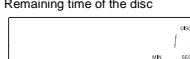
Remaining time of the current track



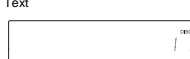
Playing time of the disc



Remaining time of the disc

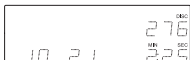


Text

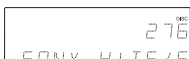


When playing a DATA CD (MP3 audio)

Track playing time and current disc, album and track number



Track name



67

68

Hints

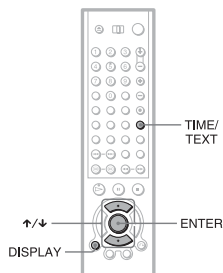
- When playing VIDEO CDs with PBC functions, the disc number, scene number and the playing time are displayed.
- Long text that does not fit in a single line will scroll across the front panel display.
- You can also check the time information and text by pressing the TIME/TEXT button on the player.
- You can also check the time information and text using the Control Menu (page 14).

Notes

- Depending on the type of disc being played, the DVD/CD text or track name may not be displayed.
- The player can only display the first level of the DVD/CD text, such as the disc name or title.
- Playing time of MP3 audio tracks may not be displayed correctly.

Checking the Play Information

You can check information such as the bit rate or the disc layer that is being played.



Viewing Information About the Disc

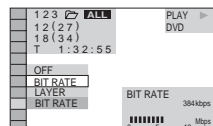
Checking the play information of DVD (ADVANCED) DVD-V DVD-RW

1 Press DISPLAY during playback.

The Control Menu is displayed.

2 Press ↑/↓ to select [JUMP] (ADVANCED), then press ENTER.

The options for "ADVANCED" appear.



3 Press ↑/↓ to select items.

For details on each item, refer to "Play information display."

- BIT RATE: displays the bit rate.
- LAYER: displays the layer and the pick-up point.

4 Press ENTER.

→ continued

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To close the ADVANCED window

Select "OFF" in Step 3.

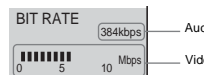
To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Play information display

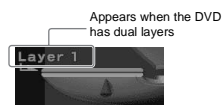
By pressing DISPLAY repeatedly, you can display either "BIT RATE" or "LAYER," whichever was selected in "ADVANCED."

◆BIT RATE



Bit rate refers to the amount of video/audio data per second in a disc. While playing a disc, an approximate bit rate of the playback picture is displayed as Mbps (Mega bit per second) and the audio as kbps (kilo bit per second). The higher the bit rate, the larger the amount of data. However, this does not always mean that you can get higher quality pictures or sounds.

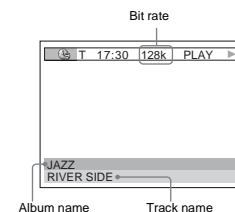
◆LAYER



Indicates the approximate point where the disc is playing. If it is a dual-layer DVD, the player indicates which layer is being read ("Layer 0" or "Layer 1"). For details on the layers, see page 99 (DVD VIDEO).

Checking the play information of DATA CD DATA CD

By pressing TIME/TEXT while playing MP3 audio track on a DATA CD, you can display the audio bit rate (the amount of data per second of the current audio).



Sound Adjustments

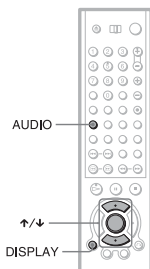
Changing the Sound

DVD-V DVD-RW VCD CD

DATA CD

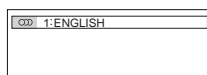
When playing a DVD recorded in multiple audio formats (PCM, Dolby Digital, or DTS), you can change the audio format. If the DVD is recorded with multilingual tracks, you can also change the language.

With CDs, DATA CDs, or VIDEO CDs, you can select the sound from the right or left channel and listen to the sound of the selected channel through both the right and left speakers. For example, when playing a disc containing a song with the vocals on the right channel and the instruments on the left channel, you can hear the instruments from both speakers by selecting the left channel.



1 Press AUDIO during playback.

The following display appears.



2 Press AUDIO repeatedly to select the desired audio signal.

◆ When playing a DVD VIDEO
Depending on the DVD VIDEO, the choice of language varies.

When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 102 to see which language the code represents.

When the same language is displayed two or more times, the DVD VIDEO is recorded in multiple audio formats.

◆ When playing a DVD-RW

The types of sound tracks recorded on a disc are displayed. The default setting is underlined.

- 1: MAIN (main sound)
- 1: SUB (sub sound)
- 1: MAIN+SUB (main and sub sound)

◆ When playing a VIDEO CD, CD, or DATA CD (MP3 audio)

The default setting is underlined.

- STEREO: The standard stereo sound
- 1/L: The sound of the left channel (monaural)
- 2/R: The sound of the right channel (monaural)

Hints

You can also select "AUDIO" from the Control Menu (page 14).

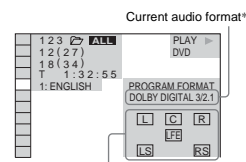
Displaying the audio information of the disc DVD-V

Press DISPLAY during playback to display the Control Menu. Select "AUDIO" using ↑/↓. The channels being played are displayed on the screen.

For example, in Dolby Digital format, multiple signals ranging from monaural to 5.1 channel signals can be recorded on a DVD VIDEO. Depending on the DVD VIDEO, the number of the recorded channels may differ.

Sound Adjustments

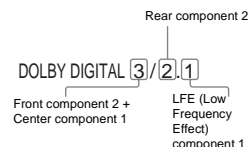
70



* "PCM," "DTS," or "DOLBY DIGITAL" is displayed.

In the case of "DOLBY DIGITAL," the channels in the playing track are displayed by numbers as follows:

For Dolby Digital 5.1 ch:



**The letters in the program format display mean the following sound component:

- L: Front (left)
- R: Front (right)
- C: Center
- LS: Rear (left)
- RS: Rear (right)
- S: Rear (monaural): The rear component of the Dolby Surround processed signal and the Dolby Digital signal
- LFE: Low Frequency Effect signal

Note

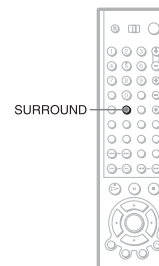
For Dolby Digital and DTS, "LFE" is always enclosed in a solid line regardless of the LFE signal component being output.

Note

If "DTS" is set to "OFF" in "AUDIO SETUP" (page 95), the DTS track selection option will not appear on the screen even if the disc contains DTS tracks.

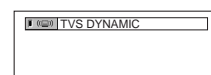
TV Virtual Surround Settings (TVS) DVD-V

When you connect a stereo TV or 2 front speakers, TVS (TV Virtual Surround) lets you enjoy surround sound effects by using sound imaging to create virtual rear speakers from the sound of the front speakers (L: left, R: right) without using actual rear speakers. TVS was developed by Sony to produce surround sound for home use using just a stereo TV.



1 Press SURROUND during playback.

The following display appears.



2 Press SURROUND repeatedly to select one of the TVS sounds.

Refer to the following explanations given for each item.

- TVS DYNAMIC
- TVS WIDE
- TVS NIGHT
- TVS STANDARD

→ continued

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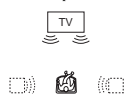
72

To cancel the setting

Select "OFF" in Step 2.

◆TVS DYNAMIC

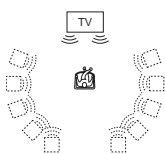
Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers (shown below). This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.



◆TVS WIDE

Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below.

This mode is effective when the distance between the front L and R speakers is short, such as with built-in speakers on a stereo TV.

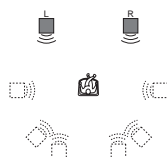


◆TVS NIGHT

Large sounds, such as explosions, are suppressed, but the quieter sounds are unaffected. This feature is useful when you want to hear the dialog and enjoy the surround sound effects of "TVS WIDE" at low volume.

◆TVS STANDARD

Creates virtual rear speakers from the sound of the front speakers (L, R) without using actual rear speakers. The virtual speakers are reproduced as shown in the illustration below. Use this setting when you want to use TVS with 2 separate speakers.



L : Front speaker (left)
R : Front speaker (right)
□ : Virtual speaker

🔊 Hints

- You can also select "TVS" by pressing the SURROUND button on the player.
- You can also select "TVS" from the Control Menu (page 14).

Notes

- When the playing signal does not contain a signal for the rear speakers, the surround effects cannot be heard.
- When you select one of the TVS modes, turn off the surround setting of the connected TV or amplifier (receiver).
- Make sure that your listening position is between and at an equal distance from your speakers, and that the speakers are located in similar surroundings.
- "TVS NIGHT" only works with Dolby Digital discs. However, not all discs will respond to the "TVS NIGHT" function in the same way.

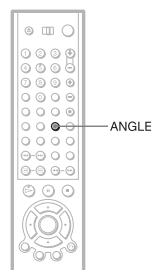
Sound Adjustments

Enjoying Movies

Changing the Angles

DVD-V

If various angles (multi-angles) for a scene are recorded on the DVD VIDEO, "ANGLE" appears in the front panel display. This means that you can change the viewing angle.



1 Press ANGLE during playback.

The number of the angle appears on the display.



2 Press ANGLE repeatedly to select the angle number.

The scene changes to the selected angle.

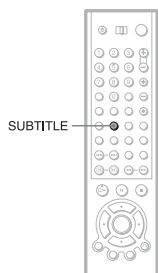
🔊 Hints

- You can display all the angles recorded on the disc on the same screen, and start playback directly from the chosen angle. The angles are displayed on a screen divided into 9 sections. For details, see page 64.
- You can also select "ANGLE" from the Control Menu (page 14).

Displaying the Subtitles

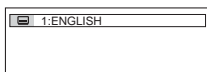
DVD-V DVD-RW

If subtitles are recorded on the discs, you can change the subtitles or turn them on and off whenever you want while playing a DVD.



1 Press SUBTITLE during playback.

The following display appears.



2 Press SUBTITLE repeatedly to select the language.

◆ When playing a DVD VIDEO

Select the language. Depending on the DVD VIDEO, the choice of language varies. When 4 digits are displayed, they indicate a language code. Refer to "Language Code List" on page 102 to see which language the code represents.

◆ When playing a DVD-RW

Select "ON."

To turn off the subtitles

Select "OFF" in Step 2.

🔊 Hint

You can also select "SUBTITLE" from the Control Menu (page 14).

Note

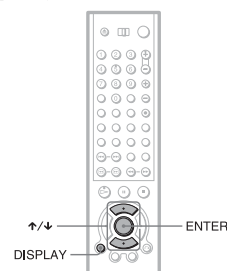
Depending on the DVD VIDEO, you may not be able to change the subtitles even if multilingual subtitles are recorded on it. You also may not be able to turn them off.

Enjoying Movies

Adjusting the Picture Quality (BNR)

VCD

The Block Noise Reduction (BNR) function adjusts the picture quality by reducing the "block noise" or mosaic like patterns that appear on your TV screen.

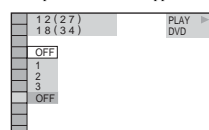


1 Press DISPLAY twice during playback.

The Control Menu appear.

2 Press ↑/↓ to select BNR, then press ENTER.

The options for "BNR" appears.



3 Press ↑/↓ to select a level.

- 1: reduces the "block noise."
- 2: reduces the "block noise" more than 1.
- 3: reduces the "block noise" more than 2.

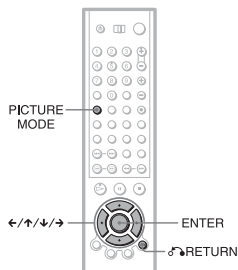
Note

Depending on the DVD VIDEO, you may not be able to change the angles even if multi-angles are recorded on the DVD VIDEO.

Adjusting the Playback Picture (CUSTOM PICTURE MODE)

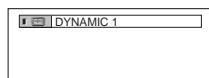
DVD-V DVD-RW VCD

You can adjust the video signal of the DVD or VIDEO CD from the player to obtain the picture quality you want. Choose the setting that best suits the program you are watching. When you select "MEMORY," you can make further adjustments to each element of the picture (color, brightness, etc.).



1 Press PICTURE MODE during playback.

The following display appears.



2 Press PICTURE MODE repeatedly to select the setting you want.

- The default setting is underlined.
- STANDARD**: displays a standard picture.
- DYNAMIC 1**: produces a bold dynamic picture by increasing the picture contrast and the color intensity.
- DYNAMIC 2**: produces a more dynamic picture than DYNAMIC 1 by further increasing the picture contrast and the color intensity.
- CINEMA 1**: enhances details in dark areas by increasing the black level.
- CINEMA 2**: White colors become brighter and black colors become richer, and the color contrast is increased.
- MEMORY**: adjusts the picture in greater detail.

Hints

- When you watch a movie, "CINEMA 1" or "CINEMA 2" is recommended.
- The picture can be adjusted by pressing the PICTURE MODE button on the player as well.
- You can also select the "CUSTOM PICTURE MODE" from the Control Menu (page 13).

Adjusting the picture items in "MEMORY"

You can adjust each element of the picture individually.

- PICTURE**: changes the contrast
- BRIGHTNESS**: changes the overall brightness
- COLOR**: makes the colors deeper or lighter
- HUE**: changes the color balance

1 Press PICTURE MODE repeatedly to select "MEMORY" and press ENTER.

The "PICTURE" adjustment bar appears.



Enjoying Movies

→ continued

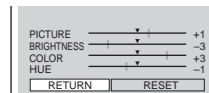
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2 Press ←/→ to adjust the picture contrast, then press ENTER.

The adjustment is saved, and "BRIGHTNESS" adjustment bar appears.

3 Repeat Step 2 to adjust "BRIGHTNESS," "COLOR," and "HUE."

The Custom Picture Mode display appears. You can check each adjustment.



To turn off the display

Press ⏮ RETURN, or select "RETURN" in Step 3 and press ENTER.

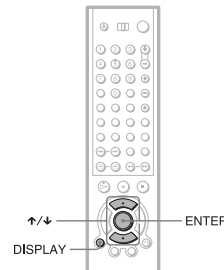
Hints

- To reset the picture items to the default values, press → after Step 3 to select "RESET" and press ENTER.
- When "PLAYBACK MEMORY" in "CUSTOM SETUP" is set to "ON," the player will save a single setting for up to 301 individual discs. (This does not apply to DVD-RWs in VR mode.)
- If you do not want to save your adjustment in Step 2, you can go to the next picture item by pressing ↑/↓ without saving.

Enhancing the Playback Picture (DIGITAL VIDEO ENHANCER)

DVD-V DVD-RW VCD

The Digital Video Enhancer (DVE) function makes the picture appear clear and crisp by enhancing the outlines of images on your TV screen. Also, this function can soften the images on the screen.

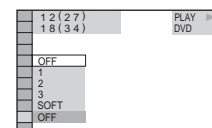


1 Press DISPLAY twice during playback.

The Control Menu appears.

2 Press ↑/↓ to select [DVE], then press ENTER.

The options for "DIGITAL VIDEO ENHANCER" appear.



3 Press ↑/↓ to select a level.

- 1: enhances the outline.
- 2: enhances the outline more than 1.
- 3: enhances the outline more than 2.
- SOFT: softens the image (DVD VIDEO/DVD-RW only)

4 Press ENTER.

The disc plays with the setting you selected.

To cancel the "DIGITAL VIDEO ENHANCER" setting

Select "OFF" in Step 3.

To turn off the Control Menu

Press DISPLAY repeatedly until the Control Menu is turned off.

Note

Depending on the disc or the scene being played, noise found in the disc may become more apparent. If this happens, it is recommended that you use the BNR function (page 76) with the DVE function. If the condition still does not improve, reduce the Digital Video Enhancer level, or select "SOFT" (DVD VIDEO/DVD-RW only) in Step 3 above.

Enjoying Movies

Using Various Additional Functions

Locking Discs (CUSTOM PARENTAL CONTROL, PARENTAL CONTROL)

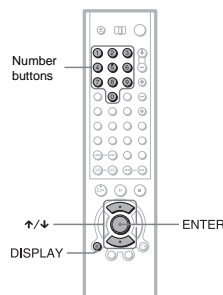
You can set two kinds of playback restrictions for the desired disc.

- Custom Parental Control**
You can set playback restrictions so that the player will not play inappropriate discs.
- Parental Control**
Playback of some DVD VIDEOS can be limited according to a predetermined level such as the age of the users. Scenes may be blocked or replaced with different scenes. The same password is used for both Parental Control and Custom Parental Control.

Custom Parental Control

DVD-V VCD CD

You can set the same Custom Parental Control password for up to 602 discs. When you set the 603rd disc, the first disc is canceled.



1 Select a disc you want to lock (page 35).

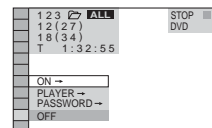
If the disc is playing, press ■ to stop playback.

2 Press DISPLAY while the player is in stop mode.

The Control Menu appears.

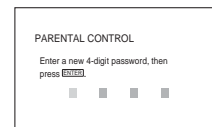
3 Press ↑/↓ to select [PARENTAL CONTROL], then press ENTER.

The options for "PARENTAL CONTROL" appear.



4 Press ↑/↓ to select "ON →," then press ENTER.

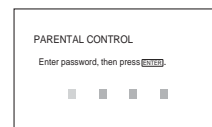
◆ If you have not entered a password The display for registering a new password appears.



Enter a 4-digit password using the number buttons, then press ENTER. The display for confirming the password appears.

◆ When you have already registered a password

The display for entering the password appears.



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5 Enter or re-enter your 4-digit password using the number buttons, then press ENTER.

"Custom parental control is set." appears and the screen returns to the Control Menu.

To turn off the Custom Parental Control function

- Follow Steps 1 through 3 of "Custom Parental Control."
- Press \uparrow/\downarrow to select "OFF \rightarrow ," then press ENTER.
- Enter your 4-digit password using the number buttons, then press ENTER.

To play a disc for which Custom Parental Control is set

- Select the disc for which Custom Parental Control is set. The "CUSTOM PARENTAL CONTROL" display appears.

CUSTOM PARENTAL CONTROL

Custom parental control is already set. To play, enter your password and press ENTER.

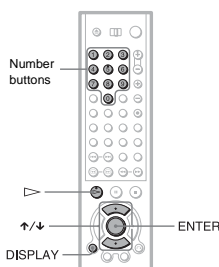
- Enter your 4-digit password using the number buttons, then press ENTER. The player is ready for playback.

Hint

If you forget your password, enter the 6-digit number "199703" using the number buttons when the "CUSTOM PARENTAL CONTROL" display asks you for your password, then press ENTER. The display will ask you to enter a new 4-digit password.

Parental Control (limited playback) DVD-V

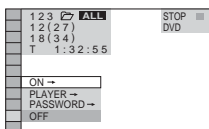
Playback of some DVD VIDEOS can be limited according to a predetermined level such as the age of the users. The "PARENTAL CONTROL" function allows you to set a playback limitation level.



- Press DISPLAY while the player is in stop mode. The Control Menu appears.

- Press \uparrow/\downarrow to select (PARENTAL CONTROL), then press ENTER.

The options for "PARENTAL CONTROL" appear.



Using Various Additional Functions

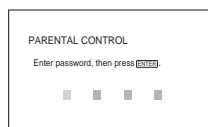
3 Press \uparrow/\downarrow to select "PLAYER \rightarrow ," then press ENTER.

◆ If you have not entered a password
The display for registering a new password appears.



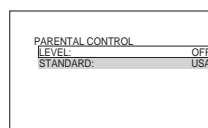
Enter a 4-digit password using the number buttons, then press ENTER. The display for confirming the password appears.

◆ When you have already registered a password
The display for entering the password appears.



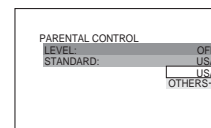
- Enter or re-enter your 4-digit password using the number buttons, then press ENTER.

The display for setting the playback limitation level appears.



- Press \uparrow/\downarrow to select "STANDARD," then press ENTER.

The selection items for "STANDARD" are displayed.

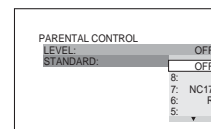


- Press \uparrow/\downarrow to select a geographic area as the playback limitation level, then press ENTER.

The area is selected. When you select "OTHERS \rightarrow ," select and enter a standard code in the table on page 83.

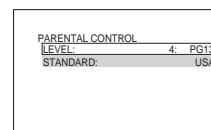
- Press \uparrow/\downarrow to select "LEVEL," then press ENTER.

The selection items for "LEVEL" are displayed.



- Select the level you want using \uparrow/\downarrow , then press ENTER.

Parental Control setting is complete.



The lower the value, the stricter the limitation.

To turn off the Parental Control function
Set "LEVEL" to "OFF" in Step 8.

To play a disc for which Parental Control is set

- Select the disc and press \triangleright . The display for entering your password appears.
- Enter your 4-digit password using the number buttons, then press ENTER. The player starts playback.

Hint

If you forget your password, press OPEN/CLOSE to open the front cover and repeat Steps 1 to 3 of "Parental Control (limited playback)." When you are asked to enter your password, enter "199703" using the number buttons, then press ENTER. The display will ask you to enter a new 4-digit password. After you enter a new 4-digit password, press OPEN/CLOSE to close the front cover and press \triangleright . When the display for entering your password appears, enter your new password.

Notes

- When you play discs which do not have the Parental control function, playback cannot be limited on this player.
- Depending on the disc, you may be asked to change the parental control level while playing the disc. In this case, enter your password, then change the level. If the Resume Play mode is cancelled, the level returns to the previous level.

Area Code

| Standard | Code number | Standard | Code number |
|-----------|-------------|----------------|-------------|
| Argentina | 2044 | Malaysia | 2363 |
| Australia | 2047 | Mexico | 2362 |
| Austria | 2046 | Netherlands | 2376 |
| Belgium | 2057 | New Zealand | 2390 |
| Brazil | 2070 | Norway | 2379 |
| Canada | 2079 | Pakistan | 2427 |
| Chile | 2090 | Philippines | 2424 |
| China | 2092 | Portugal | 2436 |
| Denmark | 2115 | Russia | 2489 |
| Finland | 2165 | Singapore | 2501 |
| France | 2174 | Spain | 2149 |
| Germany | 2109 | Sweden | 2499 |
| India | 2248 | Switzerland | 2086 |
| Indonesia | 2238 | Thailand | 2528 |
| Italy | 2254 | United Kingdom | 2184 |
| Japan | 2276 | | |
| Korea | 2304 | | |

Using Various Additional Functions

Changing the password

- Press DISPLAY while the player is in stop mode. The Control Menu appears.

- Press \uparrow/\downarrow to select (PARENTAL CONTROL), then press ENTER.

The options for "PARENTAL CONTROL" appear.

- Press \uparrow/\downarrow to select "PASSWORD \rightarrow ," then press ENTER.

The display for entering the password appears.

- Enter your 4-digit password using the number buttons, then press ENTER.

- Enter a new 4-digit password using the number buttons, then press ENTER.

- To confirm your password, re-enter it using the number buttons, then press ENTER.

If you make a mistake entering your password

Press \leftarrow before you press ENTER and input the correct number.

If you make a mistake

Press \curvearrowright RETURN.

To turn off the display

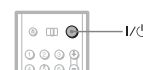
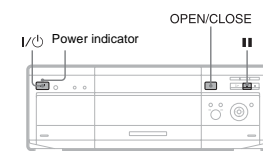
Press DISPLAY repeatedly until the display is turned off.

Operation Sound Effects (Sound Feedback)

The player beeps when the following operations are performed. The default setting of the Sound Feedback function is set to off.

| Operation | Operation sound |
|-----------------------------|-----------------|
| Power is turned on | One beep |
| Power is turned off | Two beeps |
| \triangleright is pressed | One beep |
| II is pressed | Two beeps |
| Playback is stopped | One long beep |
| Operation is not possible | Three beeps |

To set Sound Feedback



- Press I/O on the player or the remote. The power indicator lights up in green.

- Press OPEN/CLOSE to open the front cover.

- Press and hold II on the player for more than two seconds. You will hear one beep and the Sound Feedback function is turned on.

\rightarrow continued 81

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\rightarrow continued 83

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To turn off the Sound Feedback function
When the front cover is open, press and hold **II** on the player for more than two seconds. You will hear two beeps and the Sound Feedback function is turned off.

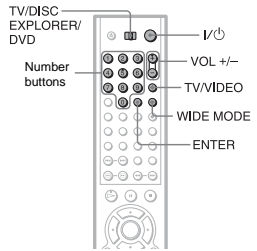
Controlling Your TV with the Supplied Remote

By adjusting the remote signal, you can control your TV with the supplied remote.

Notes

- Depending on the unit being connected, you may not be able to control your TV using some of the buttons below.
- If you enter a new code number, the code number previously entered will be erased.
- When you replace the batteries of the remote, the code number you have set may be reset to the default setting. Set the appropriate code number again.

Controlling TVs with the remote



Using Various Additional Functions

- Slide the TV/DISC EXPLORER/DVD switch to TV.
- Hold down I/⏻, and enter your TV's manufacturer's code (see the table below) using the number buttons.
- Release I/⏻.

Code numbers of controllable TVs
If more than one code number is listed, try entering them one at a time until you find the one that works with your TV.

| Manufacturer Code number | Manufacturer Code number |
|-----------------------------|--------------------------|
| Sony (default) 01 | Philco 03,04 |
| Akai 04 | Philips 08,21 |
| AOC 04 | Pioneer 16 |
| Centurion 12 | Portland 03 |
| Coronado 03 | Proscan 10 |
| Curtis-Mathes 12 | Quasar 06,18 |
| Daytron 12 | Radio Shack 05,14 |
| Emerson 03,04,14 | RCA 04,10 |
| Fisher 11 | Sampo 12 |
| General Electric 06,10 | Samsung 20,3,12 |
| Gold Star 03,04,17 | Sanyo 11,14 |
| Hitachi 02,03 | Scott 12 |
| J.C.Penney 04,12 | Sears 07,10,11 |
| JVC 09 | Sharp 03,05,18 |
| KMC 03 | Sylvania 08,12 |
| Magnavox 03,08,12 | Teknika 03,08,14 |
| Marantz 04,13 | Toshiba 07 |
| MGA/ Mitsubishi 04,12,13,17 | Wards 03,04,12 |
| NEC 04,12 | Yorx 12 |
| Panasonic 06,19 | Zenith 15 |

To control the TV
You can control the following items with the supplied remote.

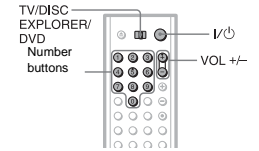
| By pressing | You can |
|--------------------------|---|
| I/⏻ | Turn the TV on or off |
| VOL +/- | Adjust the volume of the TV |
| Number buttons and ENTER | Select the channel of the TV |
| WIDE MODE | Switch to or from the wide mode of a Sony's wide TV |
| TV/VIDEO | Switch the TV's input source between the TV and other input sources |

→ continued

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Controlling the volume of your AV amplifier (receiver) with the remote



- Slide the TV/DISC EXPLORER/DVD switch to DVD.
- Hold down I/⏻, and enter your AV amplifier (receiver)'s manufacturer's code (see the table below) using the number buttons.
- Release I/⏻.
The VOL +/- buttons control the AV amplifier's volume.
◆ If you want to control the TV volume Slide the TV/DISC EXPLORER/DVD switch to TV.

Code numbers of controllable AV amplifiers(receivers)

If more than one code number is listed, try entering them one at a time until you find the one that works with your AV amplifier (receiver).

| Manufacturer | Code number |
|--------------|----------------|
| Sony | 80, 88, 89, 91 |
| Denon | 84, 85, 86 |
| Kenwood | 92, 93 |
| Onkyo | 81, 82, 83 |
| Pioneer | 99 |
| Sansui | 87 |
| Technics | 97, 98 |
| Yamaha | 94, 95, 96 |

Hint
If you want to control the TV's volume even when the TV/DISC EXPLORER/DVD switch is set to DVD, repeat Steps 1 and 2 and enter the code number 90 (default).

Using Various Additional Functions

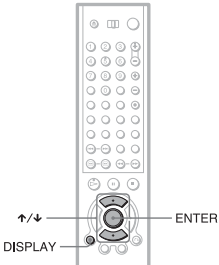
Settings and Adjustments

Using the Setup Display

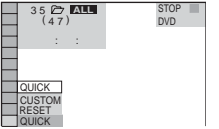
By using the Setup Display, you can make various adjustments to items such as picture and sound. You can also set a language for the subtitles and the Setup Display, among other things. For details on each Setup Display item, see pages from 89 to 95.

Note

Playback settings stored in the disc take priority over the Setup Display settings and not all the functions described may work.

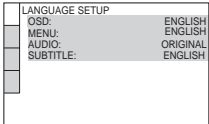


- Press DISPLAY when the player is in stop mode.
The Control Menu appears.
- Press I/⏻ to select (SETUP), then press ENTER.
The options for "SETUP" appear.



- Press I/⏻ to select "CUSTOM," then press ENTER.

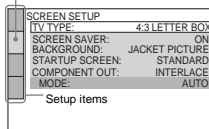
The Setup Display appears.



- Press I/⏻ to select the setup item from the displayed list: "LANGUAGE SETUP," "SCREEN SETUP," "CUSTOM SETUP," or "AUDIO SETUP." Then press ENTER.

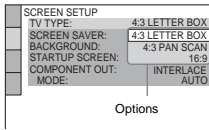
The Setup item is selected.
Example: "SCREEN SETUP"

Selected item



- Select an item using I/⏻, then press ENTER.

The options for the selected item appear.
Example: "TV TYPE"

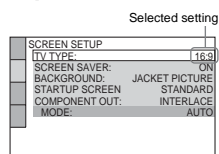


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6 Select a setting using \uparrow/\downarrow , then press ENTER.

The setting is selected and setup is complete.
Example: "16:9"



To turn off the display

Press DISPLAY repeatedly until the display is turned off.

To enter the Quick Setup mode

Select "QUICK" in Step 3. Follow from Step 5 of the Quick Setup explanation to make basic adjustments (page 29).

To reset all of the "SETUP" settings

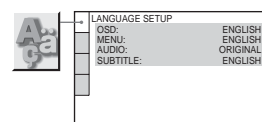
- 1 Select "RESET" in Step 3 and press ENTER
- 2 Select "YES" using \uparrow/\downarrow .
- 3 Press ENTER.
All the settings explained on pages 89 to 95 return to the default settings. Do not press \mathbf{I}/\mathbf{O} while resetting the player as it takes a few seconds to complete.

Setting the Display or Sound Track Language

(LANGUAGE SETUP)

"LANGUAGE SETUP" allows you to set various languages for the on-screen display or sound track.

Select "LANGUAGE SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 88).



◆ OSD (On-Screen Display)

Switches the display language on the screen.

◆ MENU (DVD VIDEO only)

You can select the desired language for the disc's menu.

◆ AUDIO (DVD VIDEO only)

Switches the language of the sound track. When you select "ORIGINAL," the language given priority in the disc is selected.

◆ SUBTITLE (DVD VIDEO only)

Switches the language of the subtitle recorded on the DVD VIDEO. When you select "AUDIO FOLLOW," the language for the subtitles changes according to the language you selected for the sound track.

✎ Hint

If you select "OTHERS" \rightarrow in "MENU," "SUBTITLE," and "AUDIO," select and enter a language code from "Language Code List" on page 102 using the number buttons.

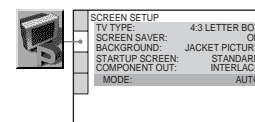
Note

When you select a language in "MENU," "SUBTITLE," or "AUDIO" that is not recorded on the DVD VIDEO, one of the recorded languages will be automatically selected.

Settings for the Display (SCREEN SETUP)

Choose settings according to the TV to be connected.

Select "SCREEN SETUP" in the Setup Display. To use the display, see "Using the Setup Display" on page 88. The default settings are underlined.



◆ TV TYPE

Selects the aspect ratio of the connected TV (4:3 standard or wide).

| | |
|----------------|---|
| 4:3 LETTER BOX | Select this when you connect a 4:3 screen TV. Displays a wide picture with bands on the upper and lower portions of the screen. |
| 4:3 PAN SCAN | Select this when you connect a 4:3 screen TV. Automatically displays the wide picture on the entire screen and cuts off the portions that do not fit. |
| 16:9 | Select this when you connect a wide-screen TV or a TV with a wide mode function. |

4:3 LETTER BOX



4:3 PAN SCAN

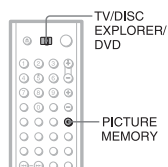


16:9



Storing a picture in memory

The player can store one scene in memory for both the background and startup screen. During playback, when you find a scene to be stored in memory, slide the TV/DISC EXPLORER/DVD switch to TV or DVD and press PICTURE MEMORY. The picture is stored in memory.



Note

If you operate the player while the picture is being stored in memory, the player will fail to store the picture.

◆ COMPONENT OUT

This will change the type of signal output from the COMPONENT VIDEO OUTPUT jacks on the player. See page 100 for more information about the different types.

| | |
|-------------|---|
| INTERLACE | Select this when you are connected to a standard (interlace format) TV. |
| PROGRESSIVE | Select this when you have a TV that can accept progressive signals. |

✎ Hint

When the player outputs progressive signals, the PROGRESSIVE indicator lights up.

Note

If you select "PROGRESSIVE" when you connect the player to a TV that cannot accept the signal in progressive format (480p), the image quality will deteriorate. In this case, set the COMPONENT VIDEO OUTPUT/SCAN SELECT switch on the back panel of the player to INTERLACE. When you can see the TV screen correctly, set "COMPONENT OUT" to "INTERLACE" and reset the COMPONENT VIDEO OUTPUT/SCAN SELECT switch to SELECTABLE.

When "PROGRESSIVE" is selected in "COMPONENT OUT"

You can fine-tune the Progressive (480p) video signal output when you select "PROGRESSIVE" in "COMPONENT OUT" of the "SCREEN SETUP" display and connect the player to the TV that is able to accept the video signal in progressive format (480p).

◆ MODE (Conversion Modes)

DVD software can be divided into two types: film based software and video based software. Video based software is derived from TV, such as dramas and sit-coms, and displays images at 30 frames/60 fields per second. Film based software is derived from film and displays images at 24 frames per second. Some DVD software contains both Video and Film.

In order for these images to appear natural on your screen when output in PROGRESSIVE mode (60 frames per second), the progressive video signal needs to be converted to match the type of DVD software that you are watching.

| | |
|-------|--|
| AUTO | This will automatically detect if you are playing Film based or Video based software and convert the signal to the appropriate conversion mode. Normally select this position. |
| VIDEO | This will set the conversion mode for Video based software, regardless of the type of software that you are playing. |

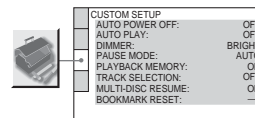
Note

When you play video based software with progressive signals, sections of some types of images may appear unnatural due to the conversion process when output through the COMPONENT VIDEO OUTPUT jacks. Images from the S VIDEO OUTPUT 1/2 and VIDEO OUTPUT 1/2 jacks are unaffected as they are output in the interlace format.

Custom Settings (CUSTOM SETUP)

Use this to make playback related adjustments and other settings.

Select "CUSTOM SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 88). The default settings are underlined.



◆ AUTO POWER OFF

Switches the Auto Power Off setting on or off.

| | |
|-----|---|
| OFF | Switches this function off. |
| ON | The player enters standby mode when left in stop mode for more than 30 minutes. |

◆ AUTO PLAY

Switches the Auto Play setting on or off. This function is useful when the player is connected to a timer (not supplied).

| | |
|-----|---|
| OFF | Switches this function off. |
| ON | Automatically starts playback when the player is turned on. |

◆ DIMMER

Adjusts the lighting of the front panel display.

| | |
|-----------|---|
| BRIGHT | Makes the lighting bright. |
| DARK | Makes the lighting dark. |
| AUTO DARK | Makes the front panel display dark if you do not operate the player or remote for a short while. |
| AUTO OFF | Turns off the lighting of the front panel display if you do not operate the player or remote for a short while. |
| OFF | Turns off the lighting. |

Note

Depending on the DVD, "4:3 LETTER BOX" may be selected automatically instead of "4:3 PAN SCAN" or vice versa.

◆ SCREEN SAVER

The screen saver image appears when you leave the player in pause or stop mode for 15 minutes, or when you play back a CD or DATA CD (MP3 audio) for more than 15 minutes. The screen saver will help prevent your display device from becoming damaged (ghosting). Press \mathbf{D} to turn off the screen saver.

| | |
|-----|-----------------------------|
| ON | Turns on the screen saver. |
| OFF | Turns off the screen saver. |

◆ BACKGROUND

Selects the background color or picture on the TV screen in stop mode or while playing a CD or DATA CD (MP3 audio).

| | |
|----------------|---|
| JACKET PICTURE | The jacket picture (still picture) appears, but only when the jacket picture is already recorded on the disc (CD-EXTRA, etc.). If the disc does not contain a jacket picture, the "GRAPHICS" picture appears. |
| PICTURE MEMORY | Your favorite picture appears in the background. To store a scene in memory, see "Storing a picture in memory" (page 91). |
| GRAPHICS | A preset picture stored in the player appears. |
| BLUE | The background color is blue. |
| BLACK | The background color is black. |

◆ STARTUP SCREEN

Selects the startup screen. The startup screen image you selected appears on the TV screen when you turn on the player.

| | |
|----------------|---|
| STANDARD | The standard startup screen in the player's memory appears. |
| PICTURE MEMORY | Your favorite picture appears in the startup screen. To store a scene in memory, see "Storing a picture in memory" (page 91). |

◆ PAUSE MODE (DVD VIDEO/DVD-RW only)

Selects the picture in pause mode.

| | |
|-------|---|
| AUTO | The picture, including subjects that move dynamically, is output with no jitter. Normally select this position. |
| FRAME | The picture, including subjects that do not move dynamically, is output in high resolution. |

◆ PLAYBACK MEMORY

The player can store "SUBTITLE" and other settings of each disc for up to 301 discs (Playback Memory). For double-sided DVDs, the settings for both sides of the disc are memorized.

Set this function "ON" or "OFF."

| | |
|-----|--|
| ON | Stores the settings in memory when you eject the disc. |
| OFF | Does not store the settings in memory. |

The following settings are stored in memory.

- ANGLE (page 74)*
- AUDIO (page 71)*
- BNR (page 76)**
- BOOKMARK (page 65)**
- CUSTOM PICTURE MODE (page 77)**
- DIGITAL VIDEO ENHANCER (page 78)**
- DISC MEMO (page 58)***
- SUBTITLE (page 75)*

* DVD VIDEO only

**DVD VIDEO/VIDEO CD only

***DVD VIDEO/VIDEO CD/CD only

Notes

- The player can store the settings of up to 301 discs. When you store the setting of disc number 302, the first disc setting is canceled.
- The Playback Memory function cannot be used for DVD-RWs in VR mode.

◆ TRACK SELECTION (DVD VIDEO only)

Gives the sound track which contains the highest number of channels priority when you play a DVD VIDEO on which multiple audio formats (PCM, DTS, or Dolby Digital format) are recorded.

| | |
|------|--------------------|
| OFF | No priority given. |
| AUTO | Priority given. |

Notes

- When you set the item to "AUTO," the language may change. The "TRACK SELECTION" setting has higher priority than the "AUDIO" settings in "LANGUAGE SETUP" (page 89).
- If you set "DTS" to "OFF" (page 95), the DTS sound track is not played even if you set "TRACK SELECTION" to "AUTO."
- If PCM, DTS, and Dolby Digital sound tracks have the same number of channels, the player selects PCM, DTS, and Dolby Digital sound tracks in this order.

◆ MULTI-DISC RESUME (DVD VIDEO/VIDEO CD only)

Switches the Multi-disc Resume setting on or off. Resume playback point can be stored in memory for up to 6 different DVD VIDEO/VIDEO CD discs (page 40) so long as they are placed in the EASY PLAY slot.

| | |
|-----|--|
| ON | Stores the resume settings in memory for up to 6 discs (The settings remain in memory even if you select "OFF.") |
| OFF | Does not store the resume settings in memory. Playback restarts at the resume point only for the current disc in the player. |

◆ BOOKMARK RESET →

Resets the bookmarks. Select this and press ENTER. The "BOOKMARK RESET" display appears. Press ENTER again to erase all of the bookmarks in all of the discs.

Settings for the Sound (AUDIO SETUP)

"AUDIO SETUP" allows you to set the sound according to the playback and connection conditions.

Select "AUDIO SETUP" in the Setup Display. To use the display, see "Using the Setup Display" (page 88). The default settings are underlined.

| | |
|----------------|----------------|
| AUDIO SETUP | |
| AUDIO ATT: | OFF |
| AUDIO DRC: | STANDARD |
| DOWNMIX: | DOLBY SURROUND |
| DIGITAL OUT: | ON |
| DOLBY DIGITAL: | D-PCM |
| DTS: | OFF |

◆ AUDIO ATT (attenuation)

If the playback sound is distorted, set this item to "ON." The player reduces the audio output level.

This function affects the output of the AUDIO OUTPUT L/R 1/2 jacks.

| | |
|-----|---|
| OFF | Normally, select this position. |
| ON | Select this when the playback sound from the speakers is distorted. |

◆ AUDIO DRC (Dynamic Range Control) (DVD VIDEO/DVD-RW only)

Makes the sound clear when the volume is turned down when playing a DVD that conforms to "AUDIO DRC." This affects the output from the following jacks:

- AUDIO OUTPUT L/R 1/2 jacks
- DIGITAL OUTPUT (COAXIAL or OPTICAL) jack only when "DOLBY DIGITAL" is set to "D-PCM" (page 94).

| | |
|------------|--|
| STANDARD | Normally select this position. |
| TV MODE | Makes the low sounds clear even if you turn the volume down. |
| WIDE RANGE | Gives you the feeling of being at a live performance. |

Settings and Adjustments

◆ DOWNMIX (DVD only)

Switches the method for mixing down to 2 channels when you play a DVD which has rear sound elements (channels) or is recorded in Dolby Digital format. For details on the rear signal components, see "Displaying the audio information of the disc" (page 71). This function affects the output of the following jacks:

- AUDIO OUTPUT L/R 1/2 jacks
- DIGITAL OUTPUT (COAXIAL or OPTICAL) jack when "DOLBY DIGITAL" is set to "D-PCM" (page 94).

| | |
|----------------|---|
| DOLBY SURROUND | Select this when the player is connected to an audio component that conforms to Dolby Surround (Pro Logic). |
| NORMAL | Select this when the player is connected to an audio component that does not conform to Dolby Surround (Pro Logic). |

◆ DIGITAL OUT

Selects if audio signals are output via the DIGITAL OUTPUT (COAXIAL or OPTICAL) jack.

| | |
|-----|--|
| ON | Normally select this position. When you select "ON," see "Setting the digital output signal" for further settings. |
| OFF | The influence of the digital circuit upon the analog circuit is minimal. |

Setting the digital output signal

Switches the method of outputting audio signals when you connect a component such as an amplifier (receiver) or MD deck with a digital input jack.

For connection details, see page 24. Select "DOLBY DIGITAL" and "DTS" after setting "DIGITAL OUT" to "ON."

| | |
|----------------|----------------|
| AUDIO SETUP | |
| AUDIO ATT: | OFF |
| AUDIO DRC: | STANDARD |
| DOWNMIX: | DOLBY SURROUND |
| DIGITAL OUT: | ON |
| DOLBY DIGITAL: | D-PCM |
| DTS: | OFF |

If you connect a component that does not conform to the selected audio signal, a loud noise (or no sound) will come out from the speakers, affecting your ears or damaging the speakers.

◆ DOLBY DIGITAL (DVD VIDEO/DVD-RW only)

Selects the type of Dolby Digital signal.

| | |
|---------------|--|
| D-PCM | Select this when the player is connected to an audio component lacking a built-in Dolby Digital decoder. You can select whether the signals conform to Dolby Surround (Pro Logic) or not by making adjustments to the "DOWNMIX" item in "AUDIO SETUP" (page 94). |
| DOLBY DIGITAL | Select this when the player is connected to an audio component with a built-in Dolby Digital decoder. |

→ continued

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◆ DTS (DVD VIDEO only)

Selects whether or not to output DTS signal.

| | |
|-----|--|
| OFF | Select this when the player is connected to an audio component lacking a built-in DTS decoder. |
| ON | Select this when the player is connected to an audio component with a built-in DTS decoder. |

Additional Information

Troubleshooting

If you experience any of the following difficulties while using the player, use this troubleshooting guide to help remedy the problem before requesting repairs. Should any problem persist, consult your nearest Sony dealer.

Power

The power is not turned on.

- Check that the AC power cord is connected securely.

Picture

There is no picture/picture noise appears.

- Re-connect the connecting cord securely.
- The connecting cord is damaged.
- Check the connection to your TV (page 21) and switch the input selector on your TV so that the signal from the player appears on the TV screen.
- The disc is dirty or flawed.
- If the picture output from your player goes through your VCR to get to your TV or if you are connected to a combination TV/VIDEO player, the copy-protection signal applied to some DVD programs could affect picture quality. If you still experience problems even when you connect your player directly to your TV, try connecting your player to your TV's S VIDEO input (page 21).
- You have selected "PROGRESSIVE" in "COMPONENT OUT" even though your TV cannot accept the signal in progressive format. In this case, set the COMPONENT VIDEO OUTPUT/SCAN SELECT switch on the back panel of the player to INTERLACE. When you can see the TV screen correctly, set "COMPONENT OUT" to "INTERLACE" and reset the COMPONENT VIDEO OUTPUT/SCAN SELECT switch to SELECTABLE.

Settings and Adjustments

- Even if your TV is compatible with progressive format (480p) signals, the image may be affected when you set "COMPONENT OUT" to "PROGRESSIVE." In this case, set "COMPONENT OUT" to "INTERLACE."

Even though you set the aspect ratio in "TV TYPE" of "SCREEN SETUP," the picture does not fill the screen.

- The aspect ratio of the disc is fixed on your DVD.

Sound

There is no sound.

- Re-connect the connecting cord securely.
- The connecting cord is damaged.
- The player is connected to the wrong input jack on the amplifier (receiver) (page 26, 27, 28).
- The amplifier (receiver) input is not correctly set.
- The player is in pause mode or in Slow-motion Play mode.
- The player is in fast forward or fast reverse mode.
- If the audio signal does not come through the DIGITAL OUTPUT (COAXIAL or OPTICAL) jack, check the audio settings (page 94).

Sound is noisy.

- When playing a CD with DTS sound tracks, noise will come from the AUDIO OUTPUT L/R 1/2 jacks or DIGITAL OUTPUT (COAXIAL or OPTICAL) jack (page 34).

Sound distortion occurs.

- Set "AUDIO ATT" in "AUDIO SETUP" to "ON" (page 93).

The sound volume is low.

- The sound volume is low on some DVDs. The sound volume may improve if you set "AUDIO DRC" to "TV MODE" (page 93).
- Set "AUDIO ATT" in "AUDIO SETUP" to "OFF" (page 93).

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Operation

The remote does not function.

- ➔ The batteries in the remote are weak.
- ➔ There are obstacles between the remote and the player.
- ➔ The distance between the remote and the player is too far.
- ➔ The remote is not pointed at the remote sensor on the player.
- ➔ The COMMAND MODE switch setting on the remote does not match the setting on the player (page 17).

The disc does not play.

- ➔ The disc is skewed.
- ➔ The player cannot play certain discs (page 6).
- ➔ The region code on the DVD does not match the player.
- ➔ Moisture has condensed inside the player (page 3).
- ➔ The player cannot play CD-Rs, CD-RWs, DVD-Rs, or DVD-RWs (video mode) that are not finalized (page 7).

The MP3 audio track cannot be played (page 43).

- ➔ The DATA CD is not recorded in the MP3 format that conforms to ISO9660 Level 1/ Level 2 or Joliet.
- ➔ The MP3 audio track does not have the extension “.MP3.”
- ➔ The data is not formatted in MP3 even though it has the extension “.MP3.”
- ➔ The data is not MPEG1 Audio Layer 3 data.
- ➔ The player cannot play audio tracks in MP3PRO format.

“Copyright lock” appears and the screen turns blue when playing a DVD-RW disc.

- ➔ Images taken from digital broadcasts, etc., may contain copy protection signals, such as complete copy protection signals, single copy signals, and restriction-free signals. When images that contain copy protection signals are played, a blue screen may appear instead of the images. It may take awhile while the player looks for playable images.

The title of the MP3 audio album or track is not correctly displayed.

- ➔ The player can only display numbers and alphabet. Other characters are displayed as “*g.”

The disc does not start playing from the beginning.

- ➔ Program Play, Shuffle Play, Repeat Play, or A-B Repeat Play has been selected (page 45).
- ➔ Resume play has taken effect (page 39).

The player starts playing the disc automatically.

- ➔ The disc features an auto playback function.
- ➔ “AUTO PLAY” in “CUSTOM SETUP” is set to “ON” (page 92).

Playback stops automatically.

- ➔ While playing discs with an auto pause signal, the player stops playback at the auto pause signal.

The FLIP button does not operate.

- ➔ The disc you are trying to flip does not have a side B.

You cannot perform some functions such as Stop, Search, Slow-motion Play, Repeat Play, Shuffle Play, or Program Play.

- ➔ Depending on the disc, you may not be able to do some of the above operations. See the operating manual that comes with the disc.

The language for the sound track cannot be changed.

- ➔ Try using the DVD’s menu instead of the direct selection button on the remote (page 40).
- ➔ Multilingual tracks are not recorded on the DVD being played.
- ➔ The DVD prohibits the changing of the language for the sound track.

The subtitle language cannot be changed or turned off.

- ➔ Try using the DVD’s menu instead of the direct selection button on the remote (page 40).

DVD VIDEO (page 6)

A disc that contains up to 8 hours of moving pictures even though its diameter is the same as a CD.

The data capacity of a single-layer and single-sided DVD is 4.7 GB (Giga Byte), which is 7 times that of a CD. The data capacity of a double-layer and single-sided DVD is 8.5 GB, a single-layer and double-sided DVD is 9.4 GB, and double-layer and double-sided DVD is 17 GB.

The picture data uses the MPEG 2 format, one of the worldwide standards of digital compression technology. The picture data is compressed to about 1/40 (average) of its original size. The DVD also uses a variable rate coding technology that changes the data to be allocated according to the status of the picture. Audio information is recorded in a multi-channel format, such as Dolby Digital, allowing you to enjoy a more real audio presence.

Furthermore, various advanced functions such as the multi-angle, multilingual, and Parental Control functions are provided with the DVD.

DVD-RW (page 6, 41)

A DVD-RW is a recordable and rewritable disc with the same size as the DVD VIDEO. The DVD-RW can be recorded in two different modes: VR mode and Video mode. VR (Video Recording) mode enables various programming and editing functions, some of which are limited in the case of Video mode. Video mode complies with DVD VIDEO format and can be played on other DVD players while a DVD-RW recorded in VR mode can only be played on DVD-RW compliant players. The “DVD-RW” appearing in this manual, and the on-screen displays refer to DVD-RWs in VR mode.

Film based software, Video based software (page 91)

DVDs can be classified as Film based or Video based software. Film based DVDs contain the same images (24 frames per second) that are shown at movie theaters. Video based DVDs, such as television dramas or sit-coms, displays images at 30 frames (or 60 fields) per second.

- ➔ Multilingual subtitles are not recorded on the DVD being played.
- ➔ The DVD prohibits the changing of the subtitles.

The angles cannot be changed.

- ➔ Try using the DVD’s menu instead of the direct selection button on the remote (page 40).
- ➔ Multi-angles are not recorded on the DVD being played.
- ➔ The angle can only be changed when the “ANGLE” indicator lights up on the front panel display (page 10).
- ➔ The DVD prohibits changing of the angles.

The player does not operate properly.

- ➔ When static electricity, etc., causes the player to operate abnormally, unplug the player.

Nothing is displayed on the front panel display.

- ➔ “DIMMER” in “CUSTOM SETUP” is set to “OFF” or “AUTO OFF.” Set “DIMMER” to any setting other than “OFF” or “AUTO OFF” (page 92).

5 numbers or letters are displayed on the screen and on the front panel display.

- ➔ The self-diagnosis function was activated. (See the table on page 98.)

The front cover does not open and “LOCKED” appears on the front panel display.

- ➔ Child Lock is set (page 36).

The front cover does not open and “TRAY LOCKED” appears on the front panel display.

- ➔ Contact your Sony dealer or local authorized Sony service facility.

“Data error” appears on the TV screen when playing a DATA CD.

- ➔ The MP3 audio track you want to play is broken.
- ➔ The data is not MPEG1 Audio Layer 3 data.

Self-diagnosis Function

(When letters/numbers appear in the display)

When the self-diagnosis function is activated to prevent the player from malfunctioning, a five-character service number (e.g., C 13 50) with a combination of a letter and four digits appears on the screen and the front panel display. In this case, check the following table.



| First three characters of the service number | Cause and/or corrective action |
|--|---|
| C 13 | The disc is dirty. ➔ Clean the disc with a soft cloth (page 8). |
| C 31 | The disc is not inserted correctly. ➔ Re-insert the disc correctly. |
| C 32 | The front cover automatically opens and the player enters standby mode. ➔ Check that there is nothing wrong inside the rotary table, such as a fallen disc. After you have checked the inside of the rotary table and resolved any possible problems, press [>]. |
| E XX (xx is a number) | To prevent a malfunction, the player has performed the self-diagnosis function. ➔ Contact your nearest Sony dealer or local authorized Sony service facility and give the 5-character service number. Example: E 61 10 |

Additional Information

➔ continued 97

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Glossary

Chapter (page 10, 14, 63)

Sections of a picture or a music feature that are smaller than titles. A title is composed of several chapters. Depending on the disc, no chapters may be recorded.

Dolby Digital (page 28, 94)

Digital audio compression technology developed by Dolby Laboratories. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. Dolby Digital provides the same 5.1 discrete channels of high quality digital audio found in Dolby Digital cinema audio systems. Good channel separation is realized because all of the channel data are recorded discretely and little deterioration is realized because all channel data processing is digital.

Dolby Surround (Pro Logic) (page 27, 94)

Audio signal processing technology that Dolby Laboratories developed for surround sound. When the input signal contains a surround component, the Pro Logic process outputs the front, center and rear signals. The rear channel is monaural.

DTS (page 28, 71, 95)

Digital audio compression technology that Digital Theater Systems, Inc. developed. This technology conforms to 5.1-channel surround sound. The rear channel is stereo and there is a discrete subwoofer channel in this format. DTS provides the same 5.1 discrete channels of high quality digital audio. Good channel separation is realized because all of the channel data is recorded discretely and little deterioration is realized because all channel data processing is digital.

Interlace format (page 91)

Interlace format shows every other line of an image as a single “field” and is the standard method for displaying images on television. The even number field shows the even numbered lines of an image, and the odd numbered field shows the odd numbered lines of an image.

Index (CD)/Video Index (VIDEO CD) (page 10, 14, 63)

A number that divides a track into sections to easily locate the point you want on a CD or VIDEO CD. Depending on the disc, no index may be recorded.

Progressive format (page 91)

Compared to the Interlace format that alternately shows every other line of an image (field) to create one frame, the Progressive format shows the entire image at once as a single frame. This means that while the Interlace format can show 30 frames (60 fields) in one second, the Progressive format can show 60 frames in one second. The overall picture quality increases and still images, text, and horizontal lines appear sharper. This player is compatible with the 480 progressive format.

Scene (page 10)

On a VIDEO CD with PBC (playback control) functions, the menu screens, moving pictures and still pictures are divided into sections called “scenes.”

Title (page 10, 14, 63)

The longest section of a picture or music feature on a DVD, movie, etc., in video software, or the entire album in audio software.

Track (page 10, 14, 63)

Sections of a picture or a music feature on a CD or VIDEO CD (the length of a song).

Additional Information

➔ continued 99

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Language Code List

For details, see pages 71, 75, 89.

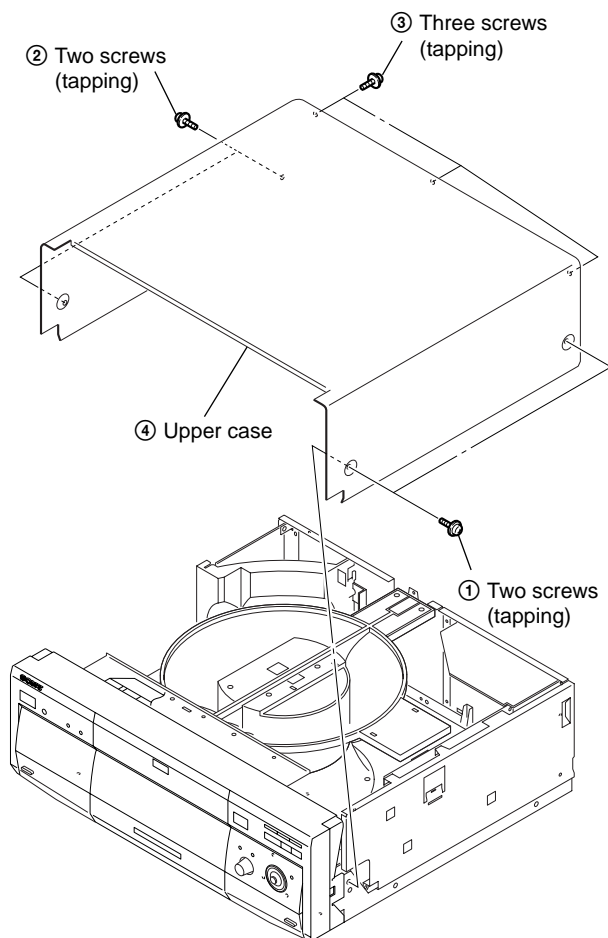
The language spellings conform to the ISO 639: 1988 (E/F) standard.

| Code Language | Code Language | Code Language | Code Language |
|-------------------|-------------------|------------------|--------------------|
| 1027 Afar | 1183 Irish | 1347 Maori | 1507 Samoan |
| 1028 Abkhazian | 1186 Scots Gaelic | 1349 Macedonian | 1508 Shona |
| 1032 Afrikaans | 1194 Galician | 1350 Malayalam | 1509 Somali |
| 1039 Amharic | 1196 Guarani | 1352 Mongolian | 1511 Albanian |
| 1044 Arabic | 1203 Gujarati | 1353 Moldavian | 1512 Serbian |
| 1045 Assamese | 1209 Hausa | 1356 Marathi | 1513 Siswati |
| 1051 Aymara | 1217 Hindi | 1357 Malay | 1514 Sesotho |
| 1052 Azerbaijani | 1226 Croatian | 1358 Maltese | 1515 Sundanese |
| 1053 Bashkir | 1229 Hungarian | 1363 Burmese | 1516 Swedish |
| 1057 Byelorussian | 1233 Armenian | 1365 Nauru | 1517 Swahili |
| 1059 Bulgarian | 1235 Interlingua | 1369 Nepali | 1521 Tamil |
| 1060 Bihari | 1239 Interlingue | 1376 Dutch | 1525 Telugu |
| 1061 Bislama | 1245 Inupiak | 1379 Norwegian | 1527 Tajik |
| 1066 Bengali; | 1248 Indonesian | 1393 Occitan | 1528 Thai |
| Bangla | 1253 Icelandic | 1403 (Afan)Oromo | 1529 Tigrinya |
| 1067 Tibetan | 1254 Italian | 1408 Oriya | 1531 Turkmen |
| 1070 Breton | 1257 Hebrew | 1417 Punjabi | 1532 Tagalog |
| 1079 Catalan | 1261 Japanese | 1428 Polish | 1534 Setswana |
| 1093 Corsican | 1269 Yiddish | 1435 Pashto; | 1535 Tonga |
| 1097 Czech | 1283 Javanese | Pushto | 1538 Turkish |
| 1103 Welsh | 1287 Georgian | 1436 Portuguese | 1539 Tsonga |
| 1105 Danish | 1297 Kazakh | 1463 Quechua | 1540 Tatar |
| 1109 German | 1298 Greenlandic | 1481 Rhaeto- | 1543 Twi |
| 1130 Bhutani | 1299 Cambodian | Romance | 1557 Ukrainian |
| 1142 Greek | 1300 Kannada | 1482 Kirundi | 1564 Urdu |
| 1144 English | 1301 Korean | 1483 Romanian | 1572 Uzbek |
| 1145 Esperanto | 1305 Kashmiri | 1489 Russian | 1581 Vietnamese |
| 1149 Spanish | 1307 Kurdish | 1491 Kinyarwanda | 1587 Volapük |
| 1150 Estonian | 1311 Kirghiz | 1495 Sanskrit | 1613 Wolof |
| 1151 Basque | 1313 Latin | 1498 Sindhi | 1632 Xhosa |
| 1157 Persian | 1326 Lingala | 1501 Sangho | 1665 Yoruba |
| 1165 Finnish | 1327 Laothian | 1502 Serbo- | 1684 Chinese |
| 1166 Fiji | 1332 Lithuanian | Croatian | 1697 Zulu |
| 1171 Faroese | 1334 Latvian; | 1503 Singhalese | |
| 1174 French | Lettish | 1505 Slovak | |
| 1181 Frisian | 1345 Malagasy | 1506 Slovenian | 1703 Not specified |

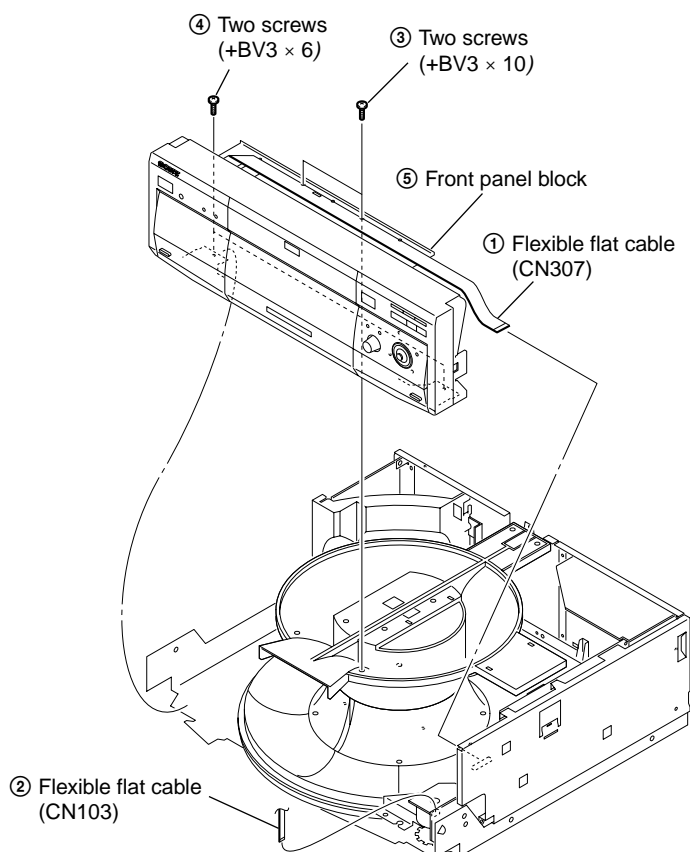
SECTION 2 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

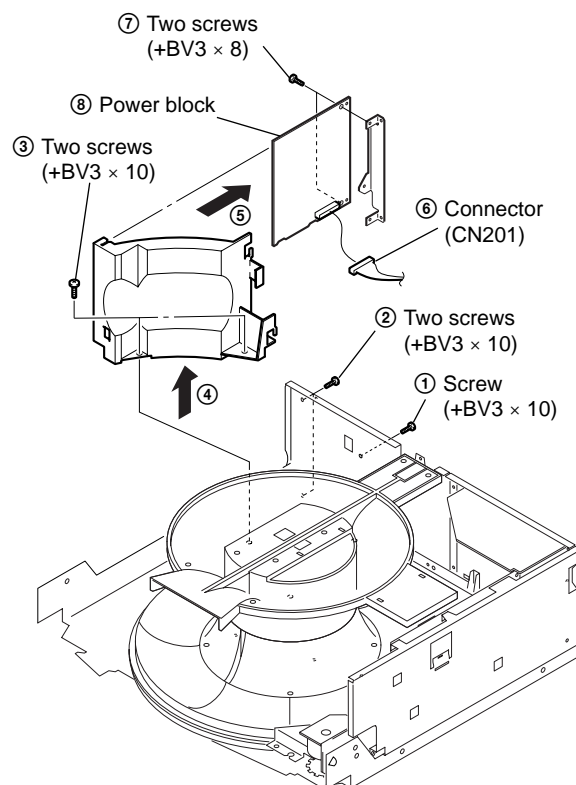
2-1. UPPER CASE REMOVAL



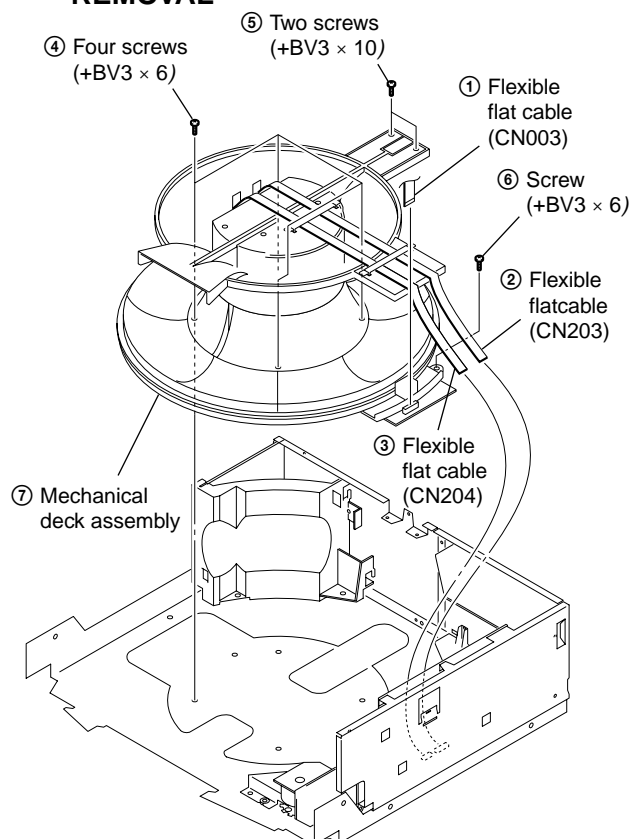
2-2. FRONT PANEL BLOCK REMOVAL



2-3. POWER BLOCK REMOVAL

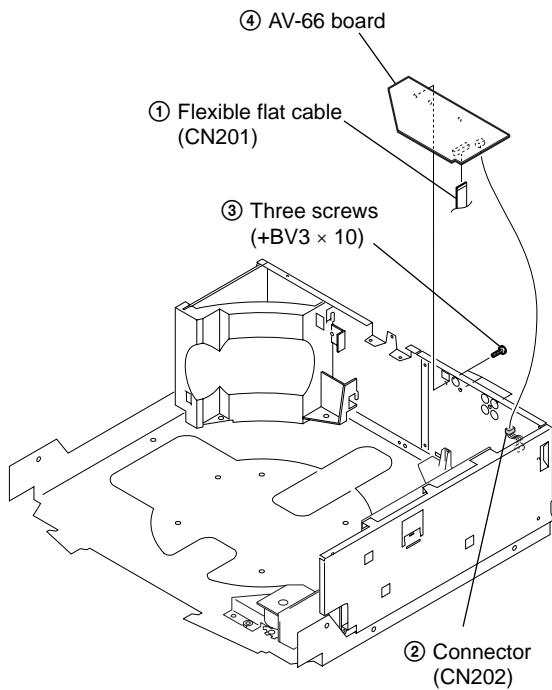


2-4. MECHANISM DECK ASSEMBLY REMOVAL

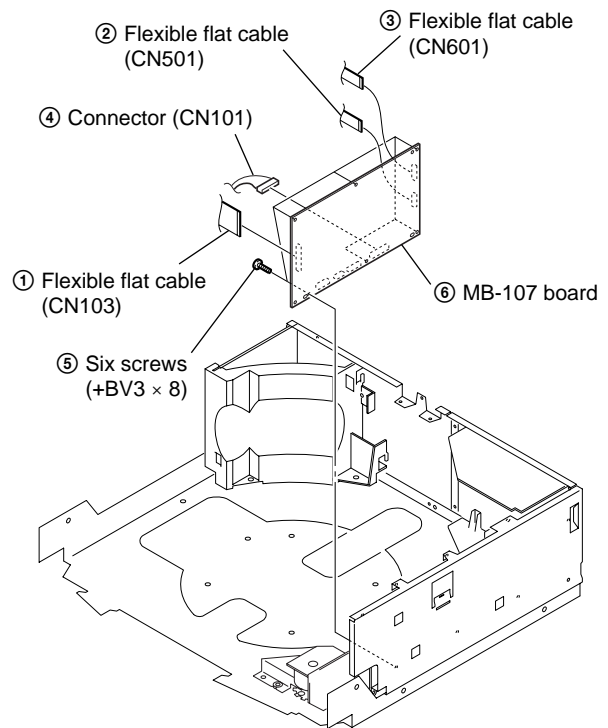


Note: After installing the mechanism deck assembly, perform disc sensor adjust and turn table adjust. (Refer to "6-5-8. 300 CHG Mecha Con Menu 2".)

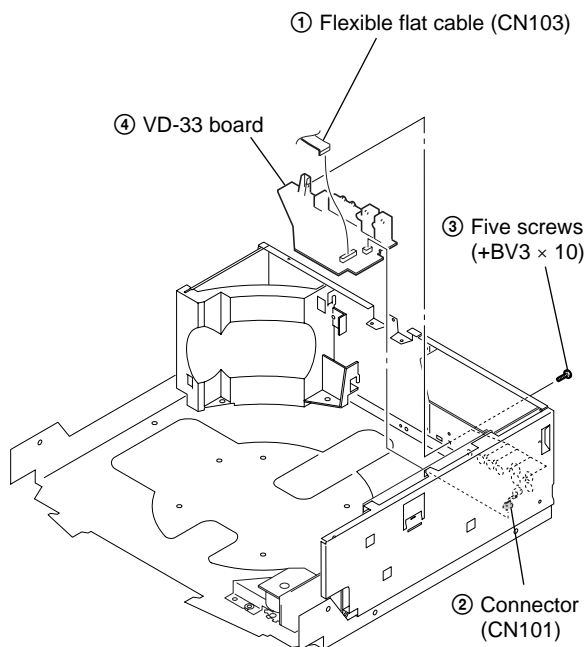
2-5. AV-66 BOARD REMOVAL



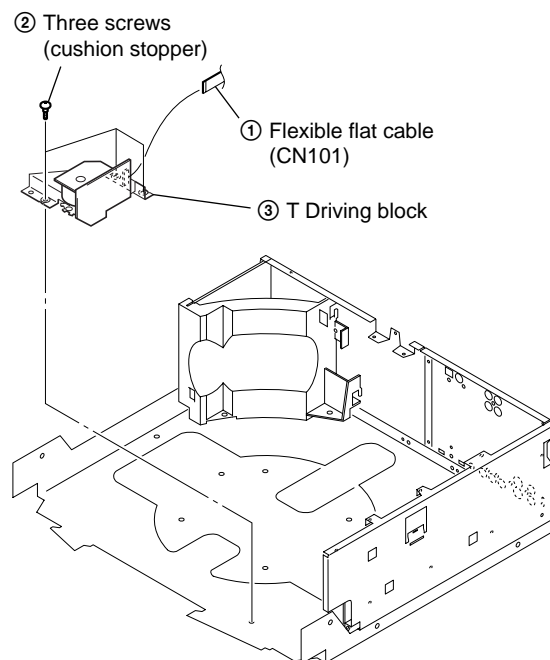
2-7. MB-107 BOARD REMOVAL



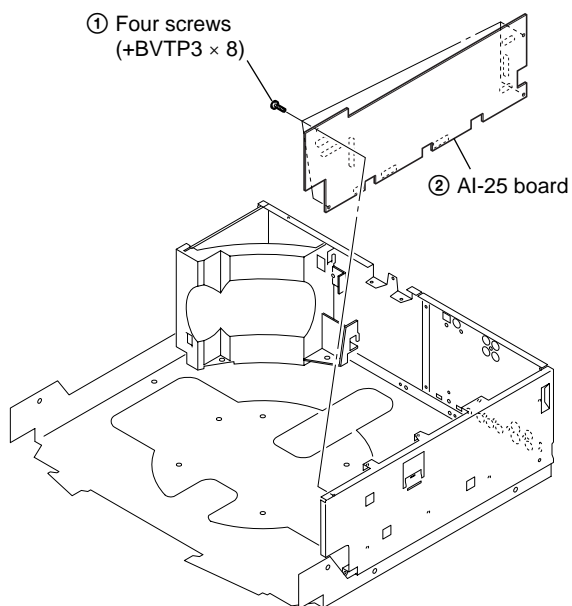
2-6. VD-33 BOARD REMOVAL



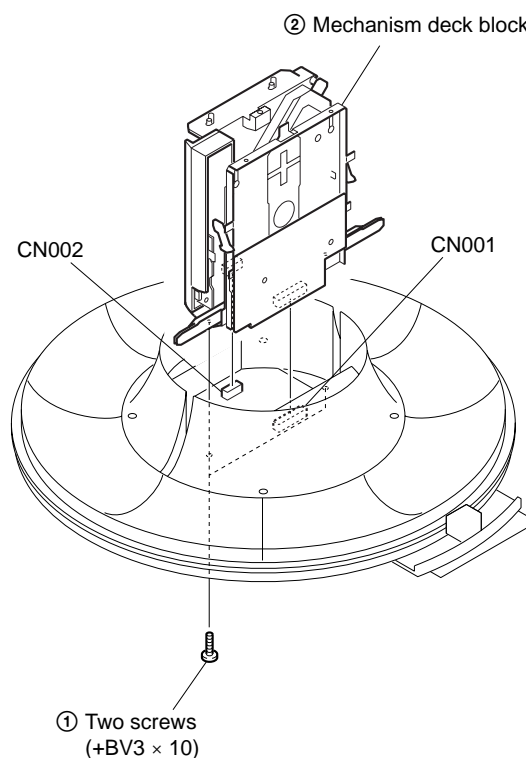
2-8. T DRIVING BLOCK REMOVAL



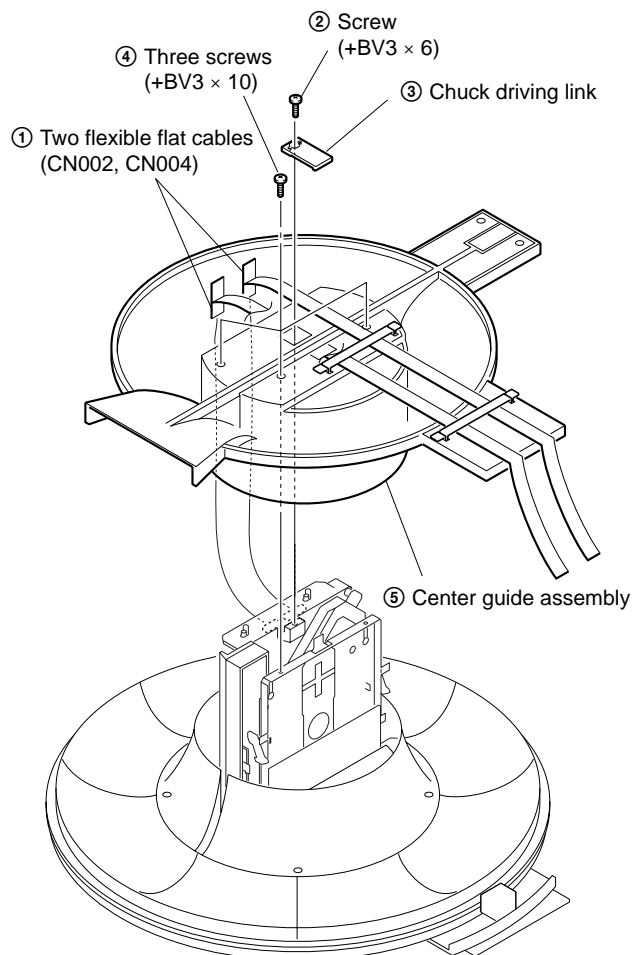
2-9. AI-25 BOARD REMOVAL



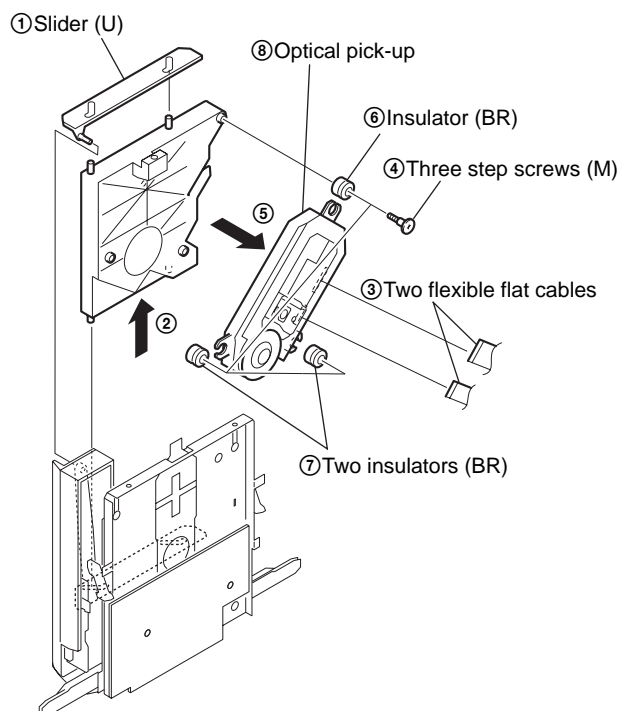
2-11. MECHANISM DECK BLOCK REMOVAL



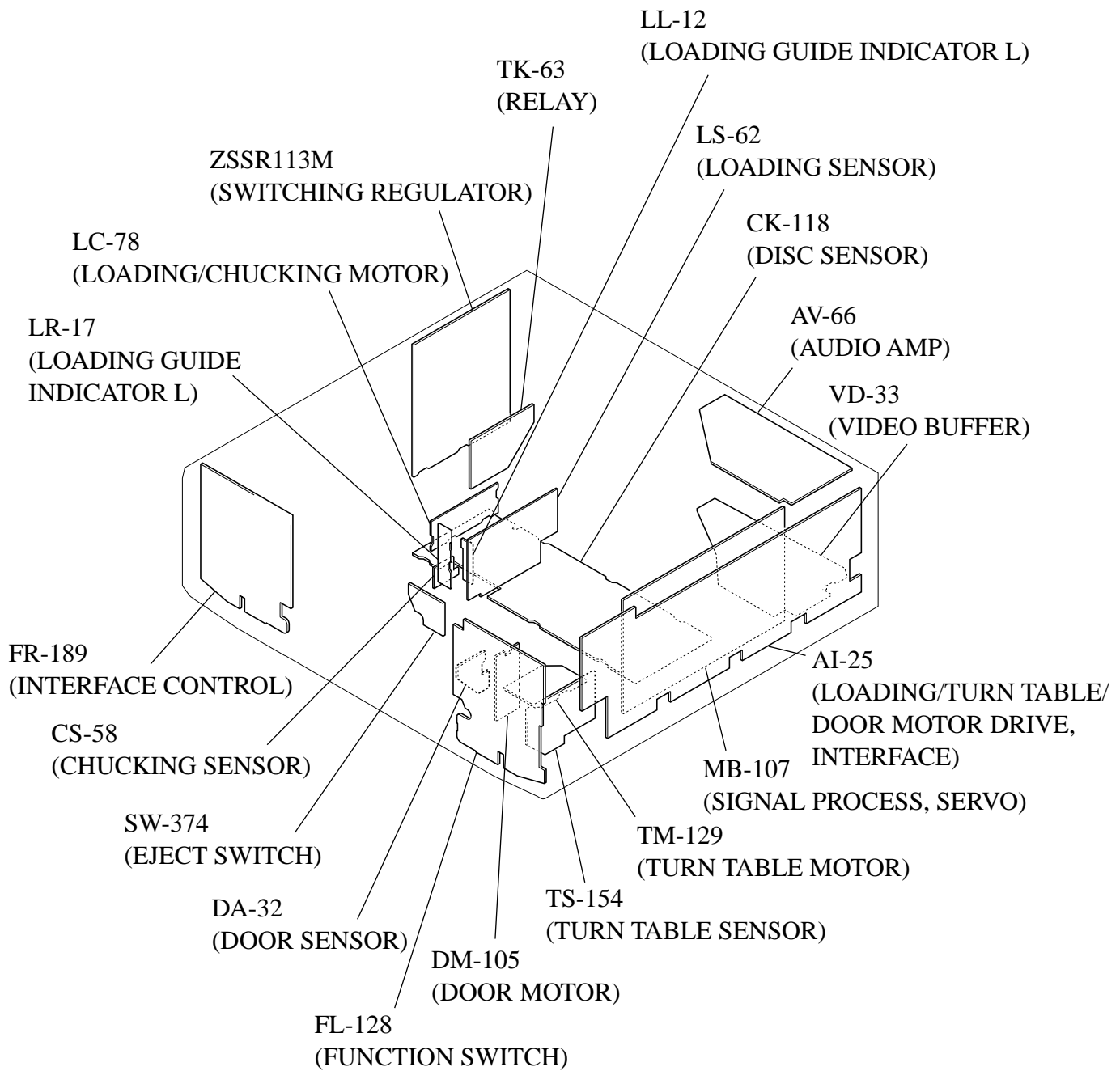
2-10. CENTER GUIDE ASSEMBLY REMOVAL



2-12. OPTICAL PICK-UP REMOVAL

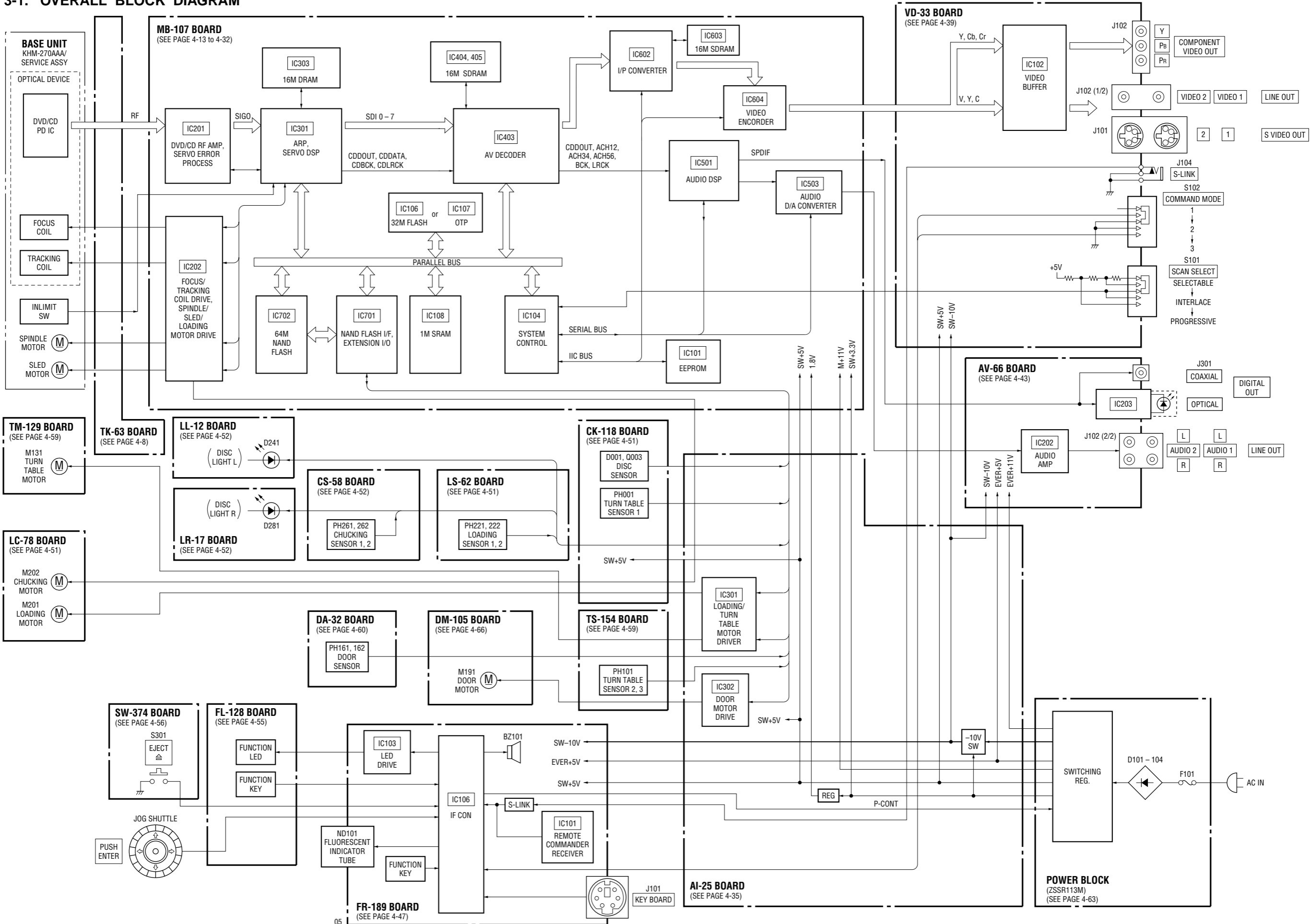


2-13. CIRCUIT BOARDS LOCATION

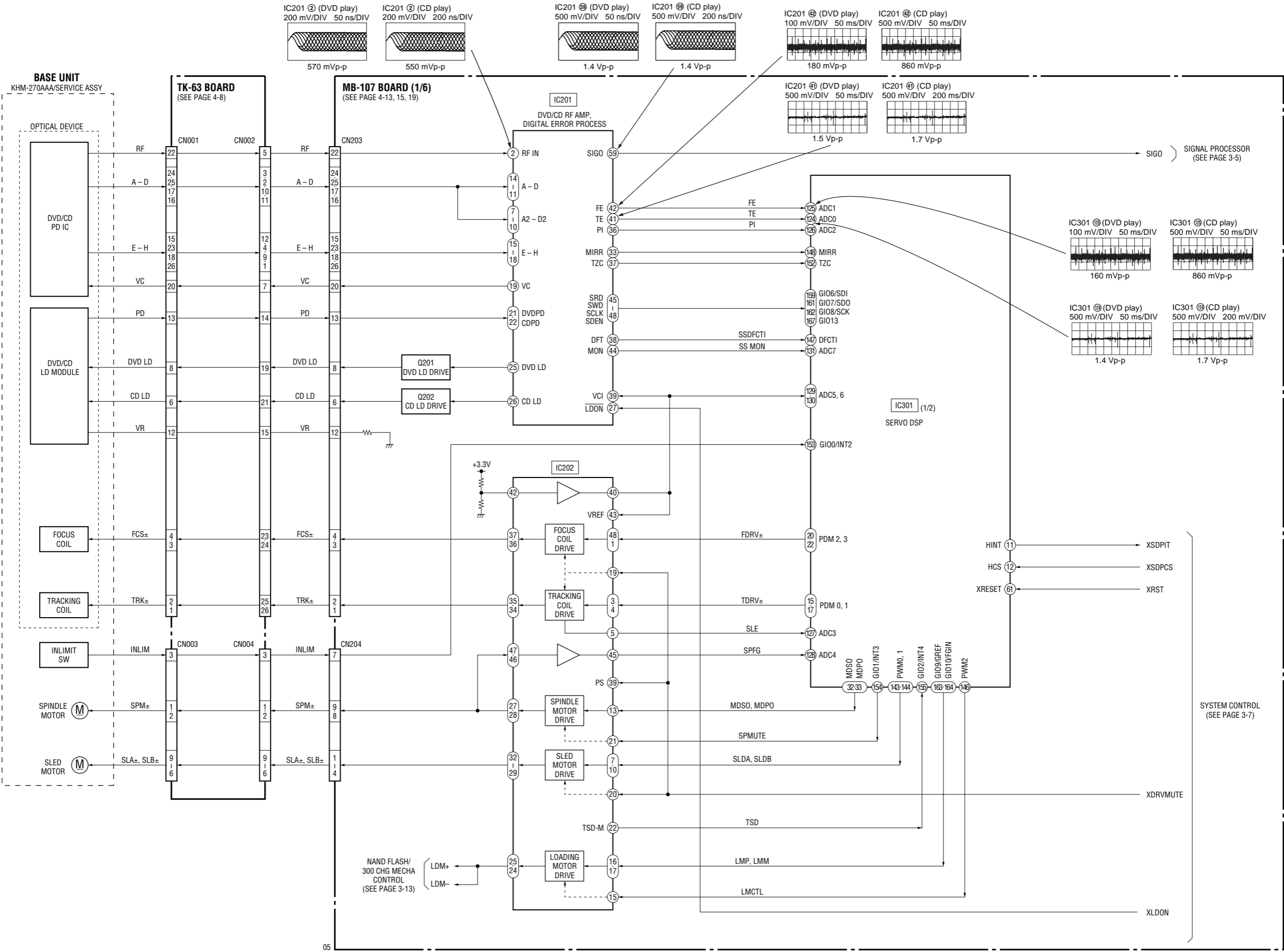


SECTION 3 BLOCK DIAGRAMS

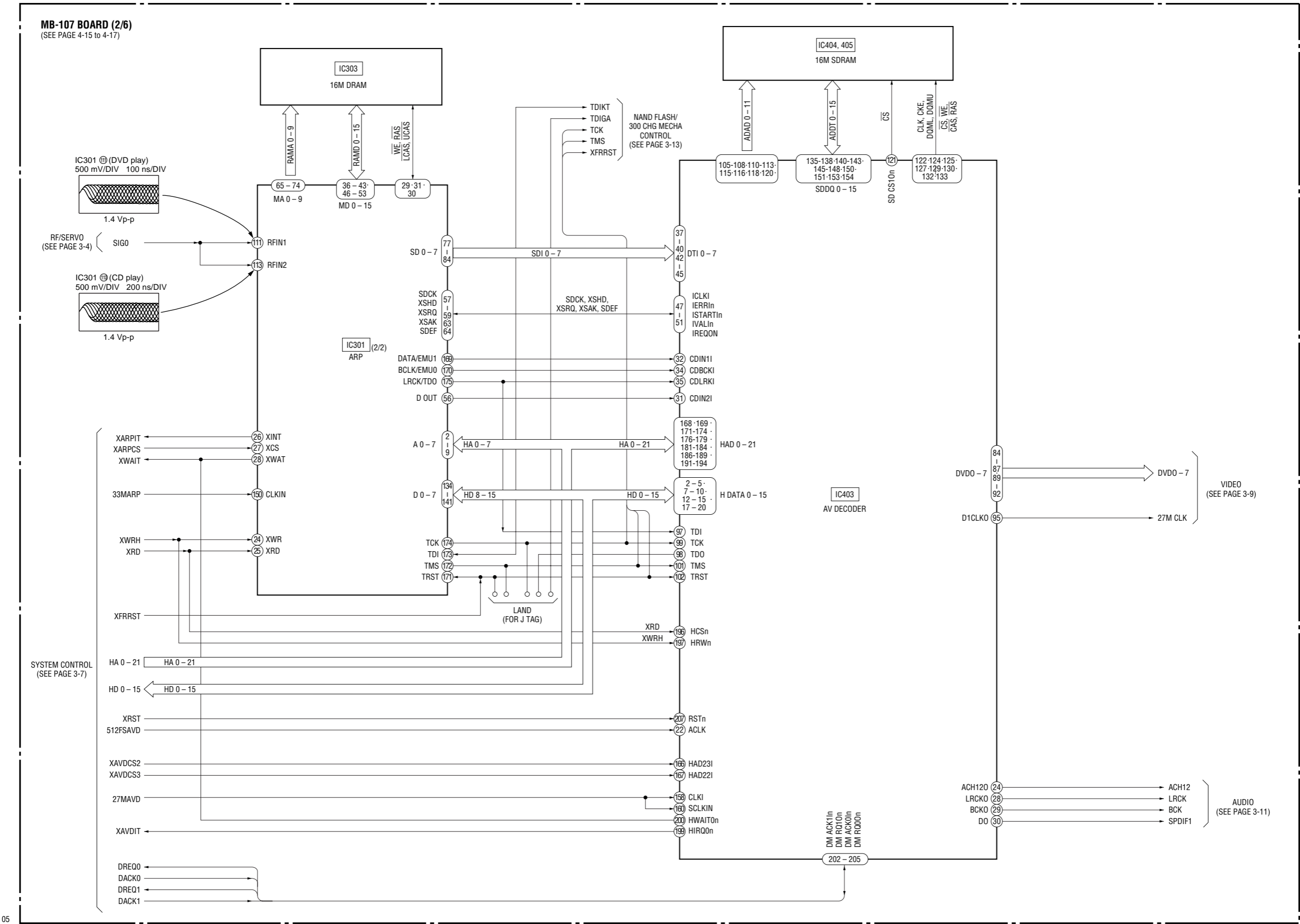
3-1. OVERALL BLOCK DIAGRAM



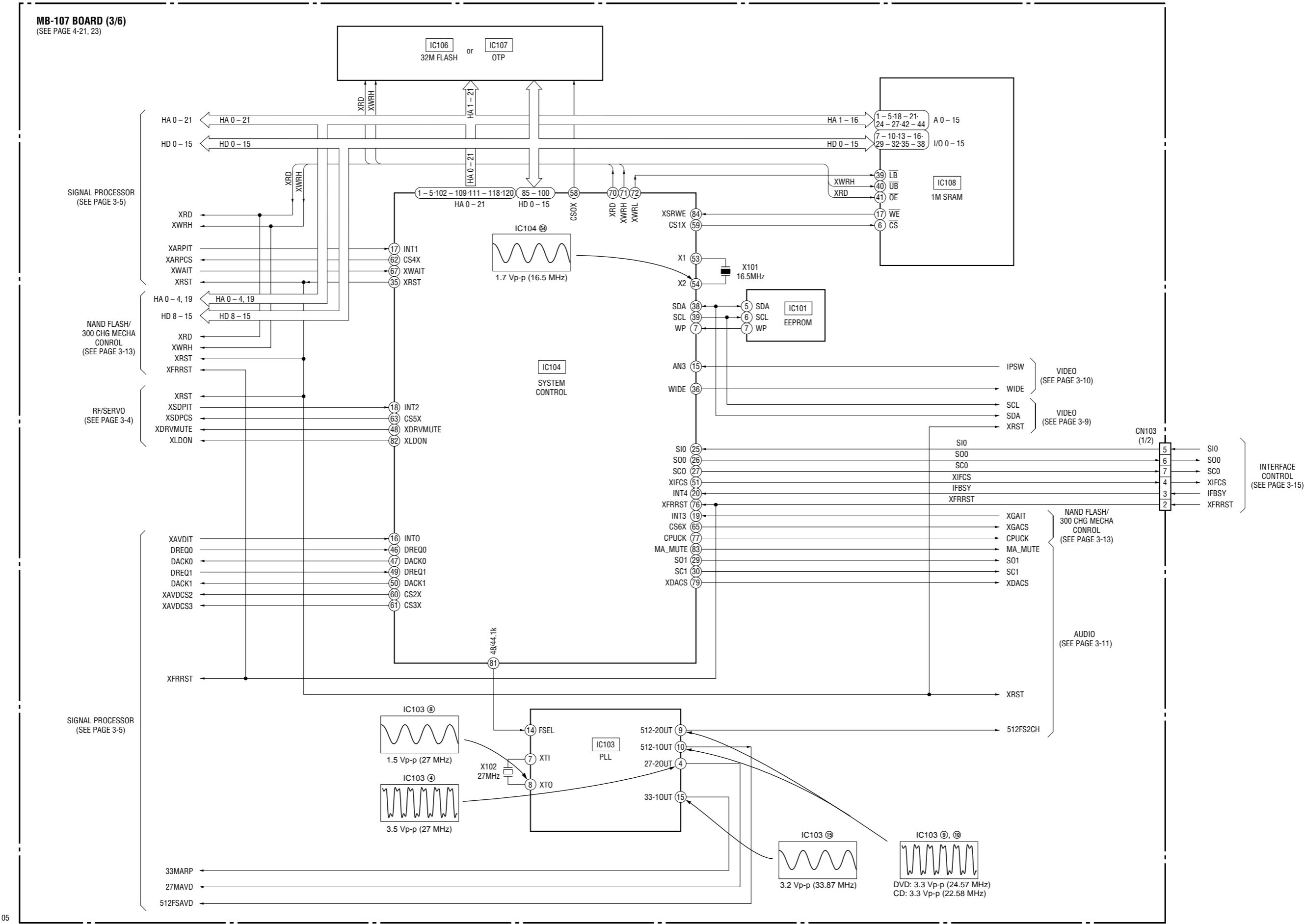
3-2. RF/SERVO BLOCK DIAGRAM



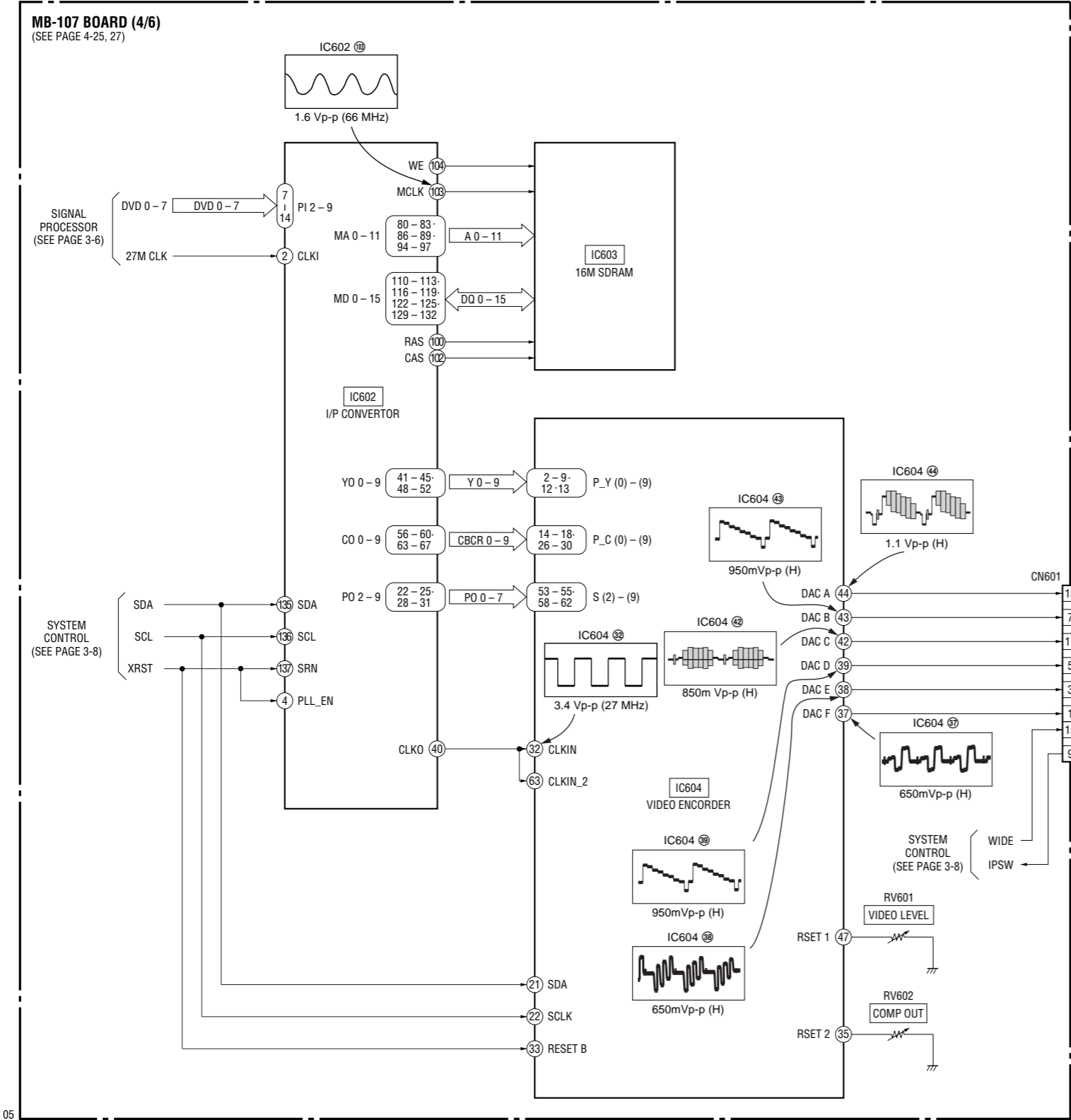
3-3. SIGNAL PROCESSOR BLOCK DIAGRAM



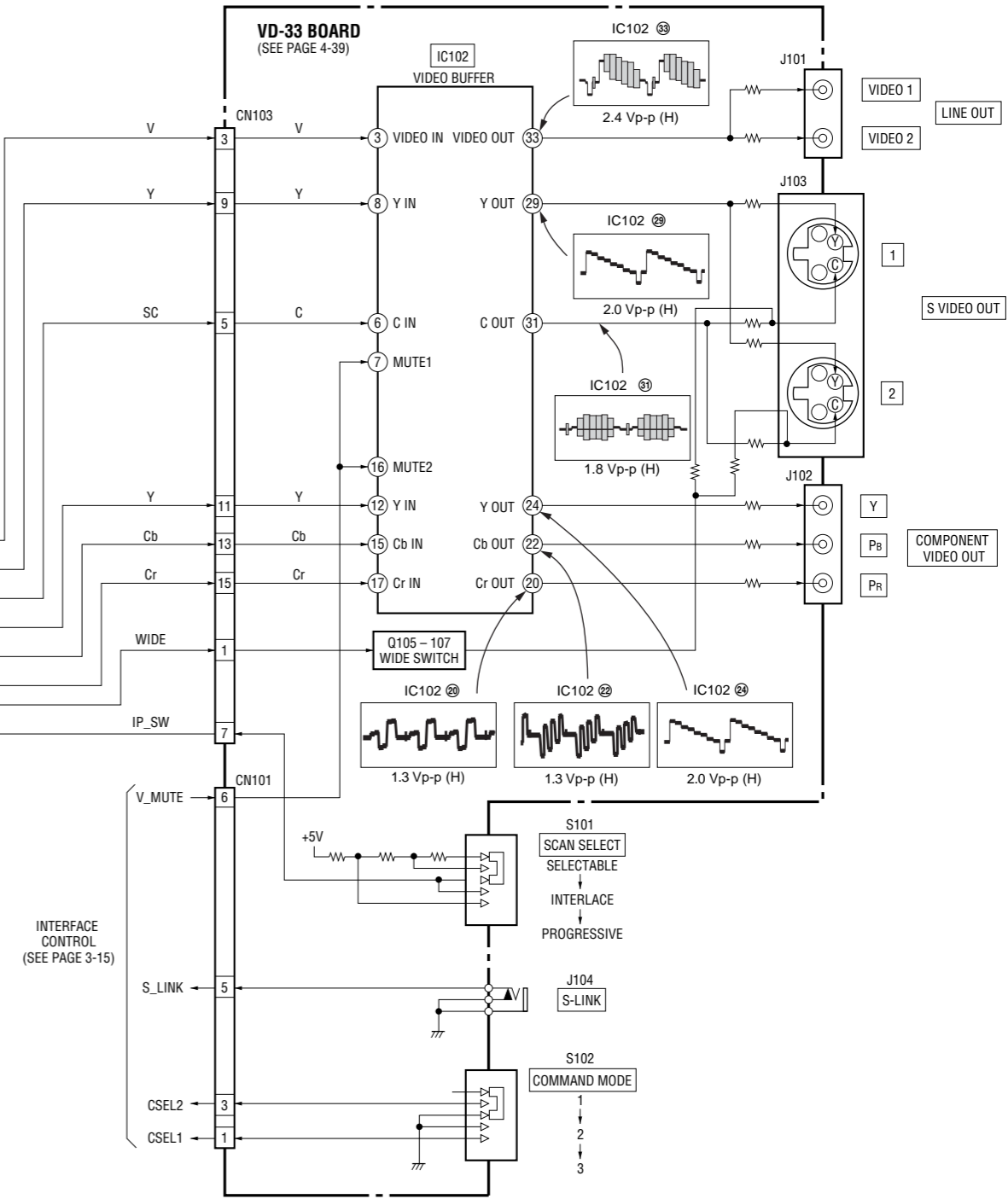
3-4. SYSTEM CONTROL BLOCK DIAGRAM



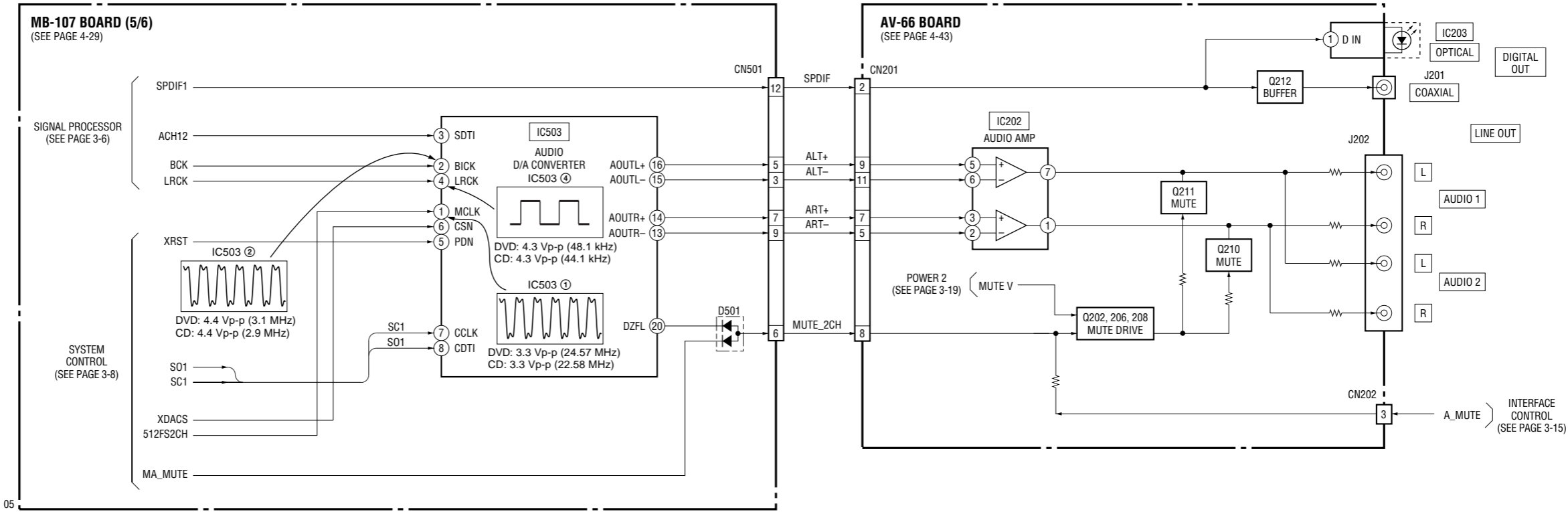
3-5. VIDEO BLOCK DIAGRAM



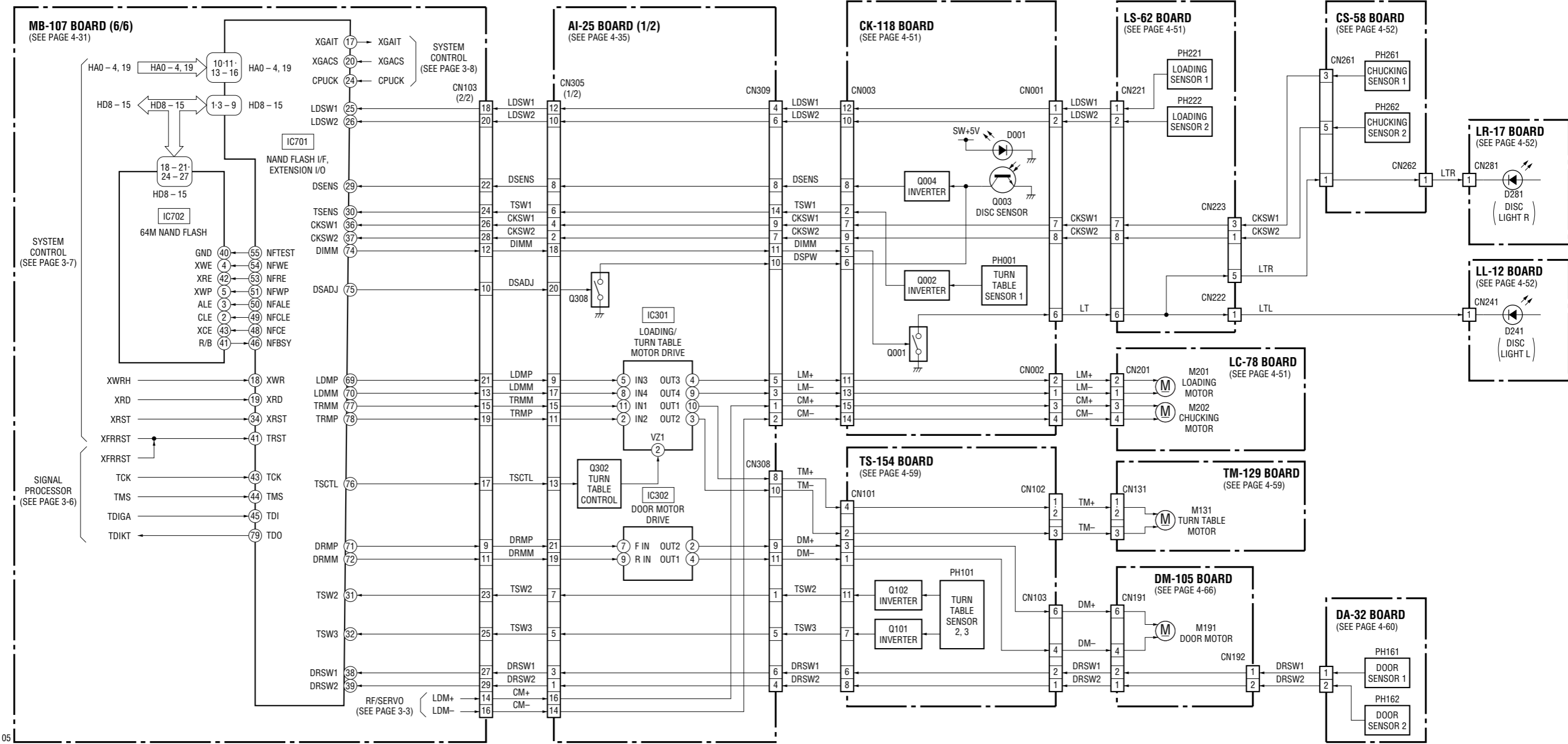
05



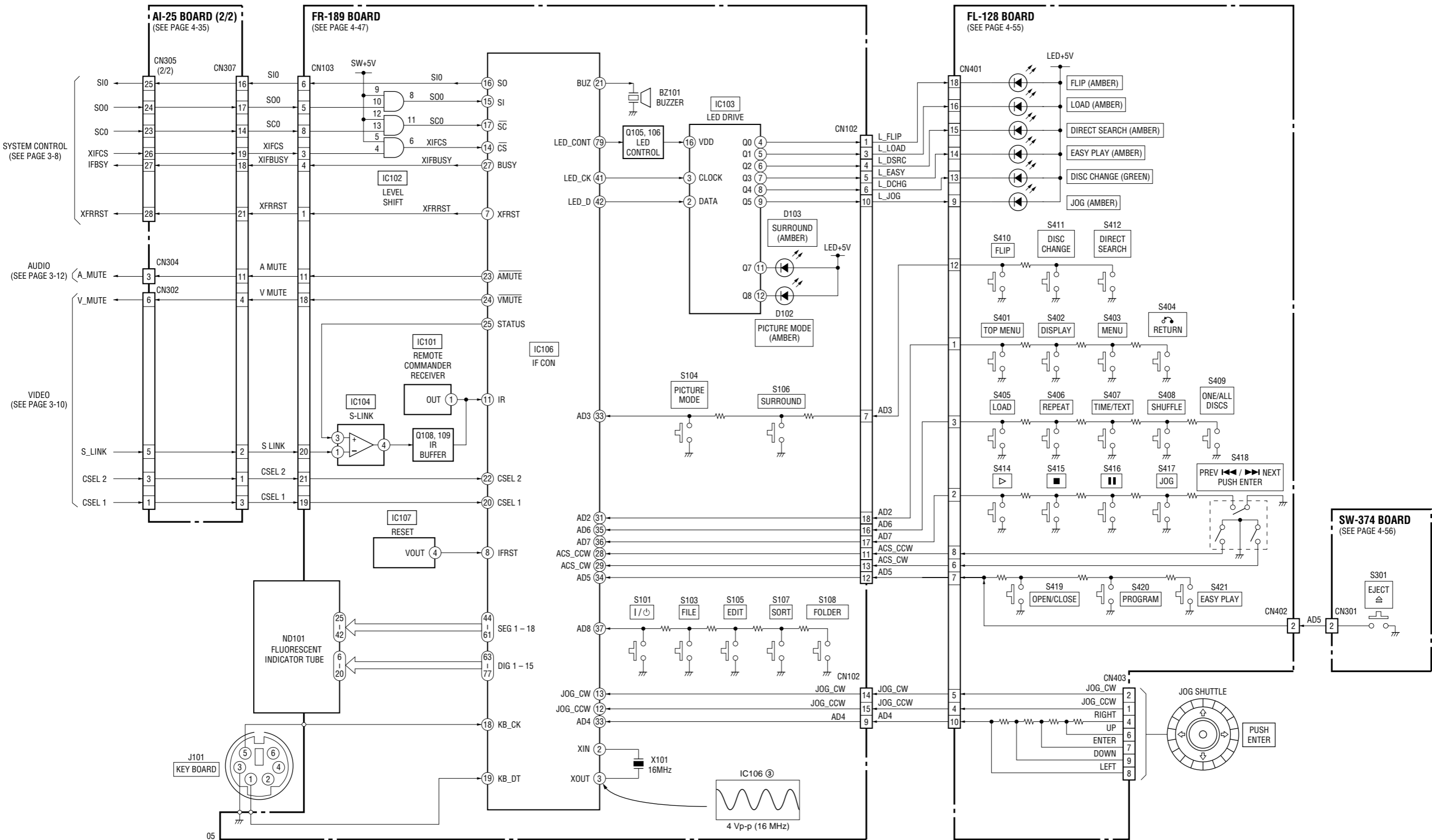
3-6. AUDIO BLOCK DIAGRAM



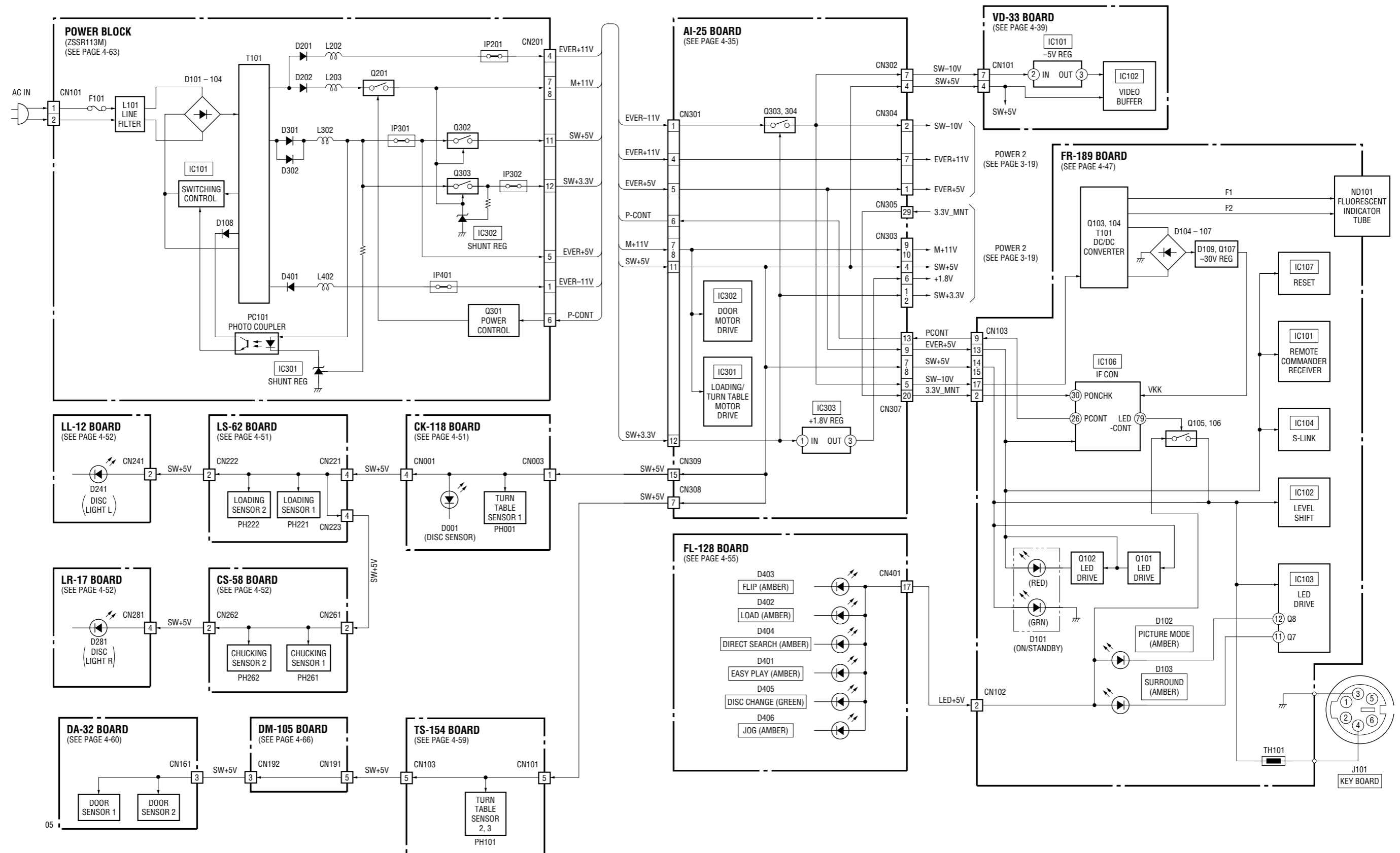
3-7. NAND FLASH/300 CHG MECHA CONTROL BLOCK DIAGRAM



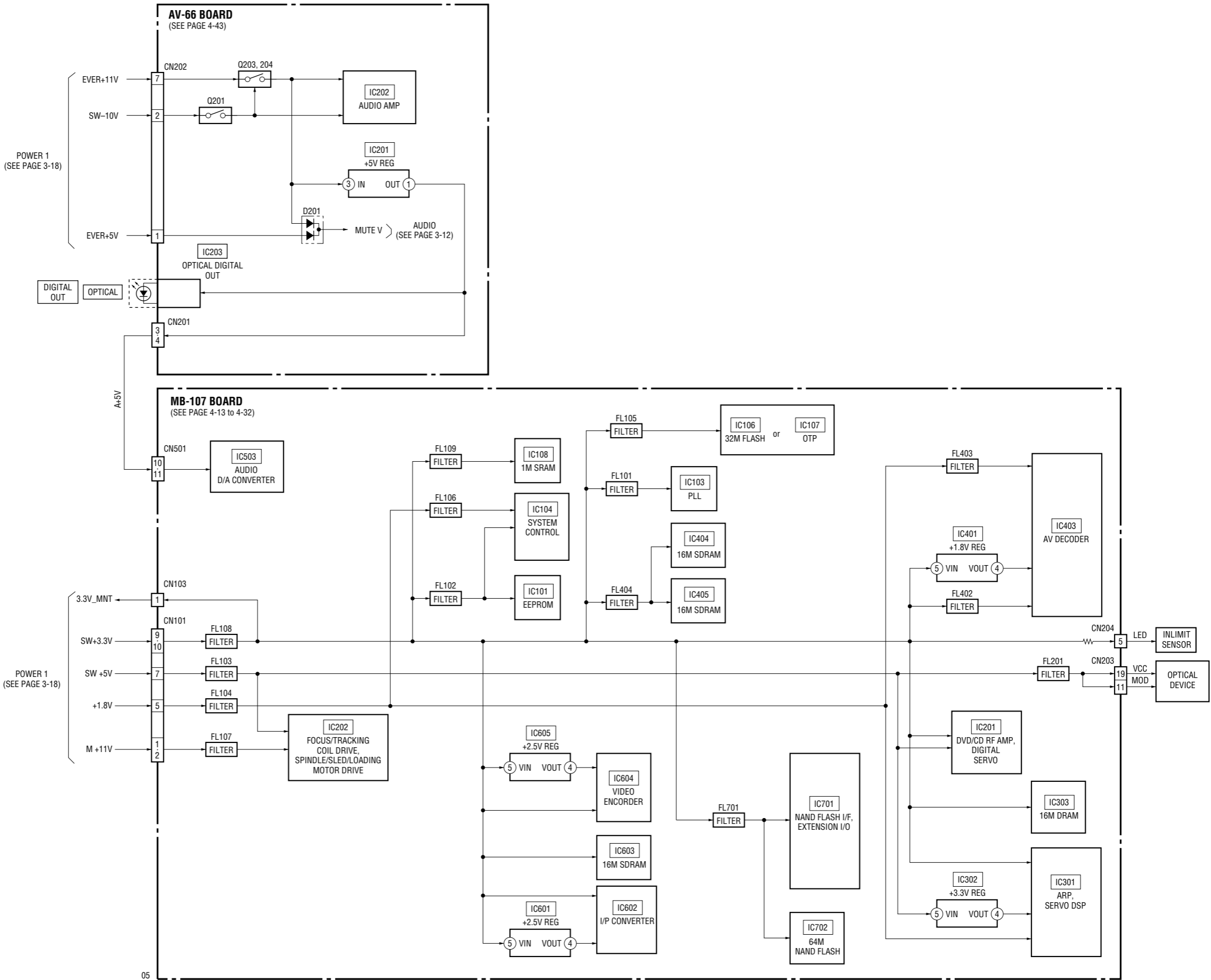
3-8. INTERFACE CONTROL BLOCK DIAGRAM



3-9. POWER (1) BLOCK DIAGRAM



3-10. POWER (2) BLOCK DIAGRAM



SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS








THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.




For printed wiring boards:

- — : indicates a lead wire mounted on the component side.
 - — : indicates a lead wire mounted on the printed side.
 - : Through hole.
 - ▨ : Pattern from the side which enables seeing.
- (The other layers' patterns are not indicated.)

| | |
|--------------------------------|--|
| Caution: | |
| Pattern face side: (Side A) | Parts on the pattern face side seen from the pattern face are indicated. |
| Parts face side: (Side B) | Parts on the parts face side seen from the parts face are indicated. |

For schematic diagram:

- Caution when replacing chip parts.
New parts must be attached after removal of chip.
Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, $\frac{1}{4}$ W (Chip resistors : $\frac{1}{10}$ W) unless otherwise specified.
k Ω : 1000 Ω , M Ω : 1000k Ω .
- All capacitors are in μ F unless otherwise noted. pF : μ μ F
50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
-  : nonflammable resistor.
-  : fusible resistor.
-  : panel designation.
-  : internal component.
-  : adjustment for repair.
-  : B+ Line.
-  : B- Line.
- Circled numbers refer to waveforms.
- Voltages are dc between measurement point.
- Readings are taken with a color-bar signal on DVD reference disc and when playing CD reference disc.
- Readings are taken with a digital multimeter (DC 10M Ω).
- Voltage variations may be noted due to normal production tolerances.

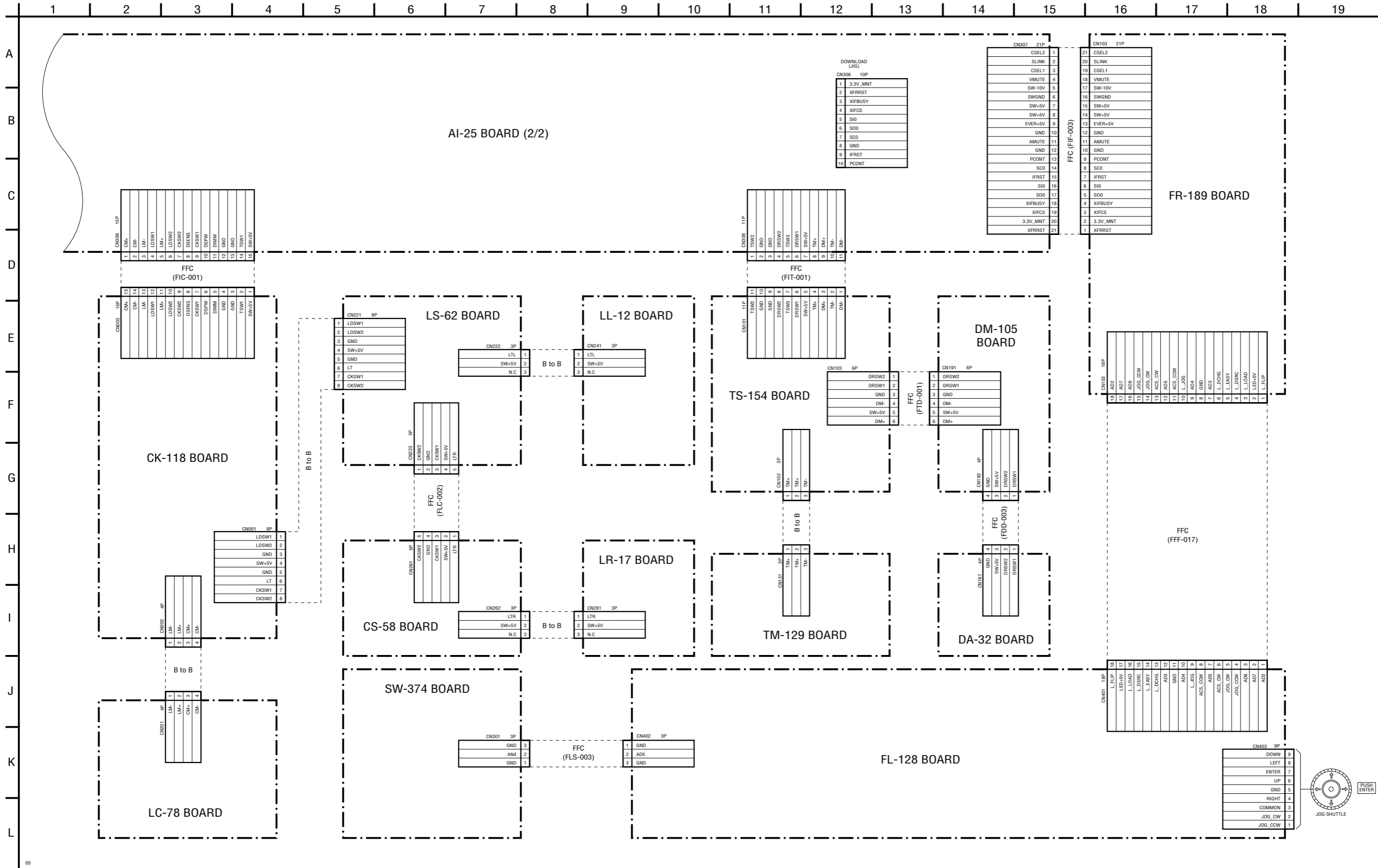
| | |
|--|---|
| Note: The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified. | Note: Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |
|--|---|

When indicating parts by reference number, please include the board name.

FRAME (1)



FRAME (2)



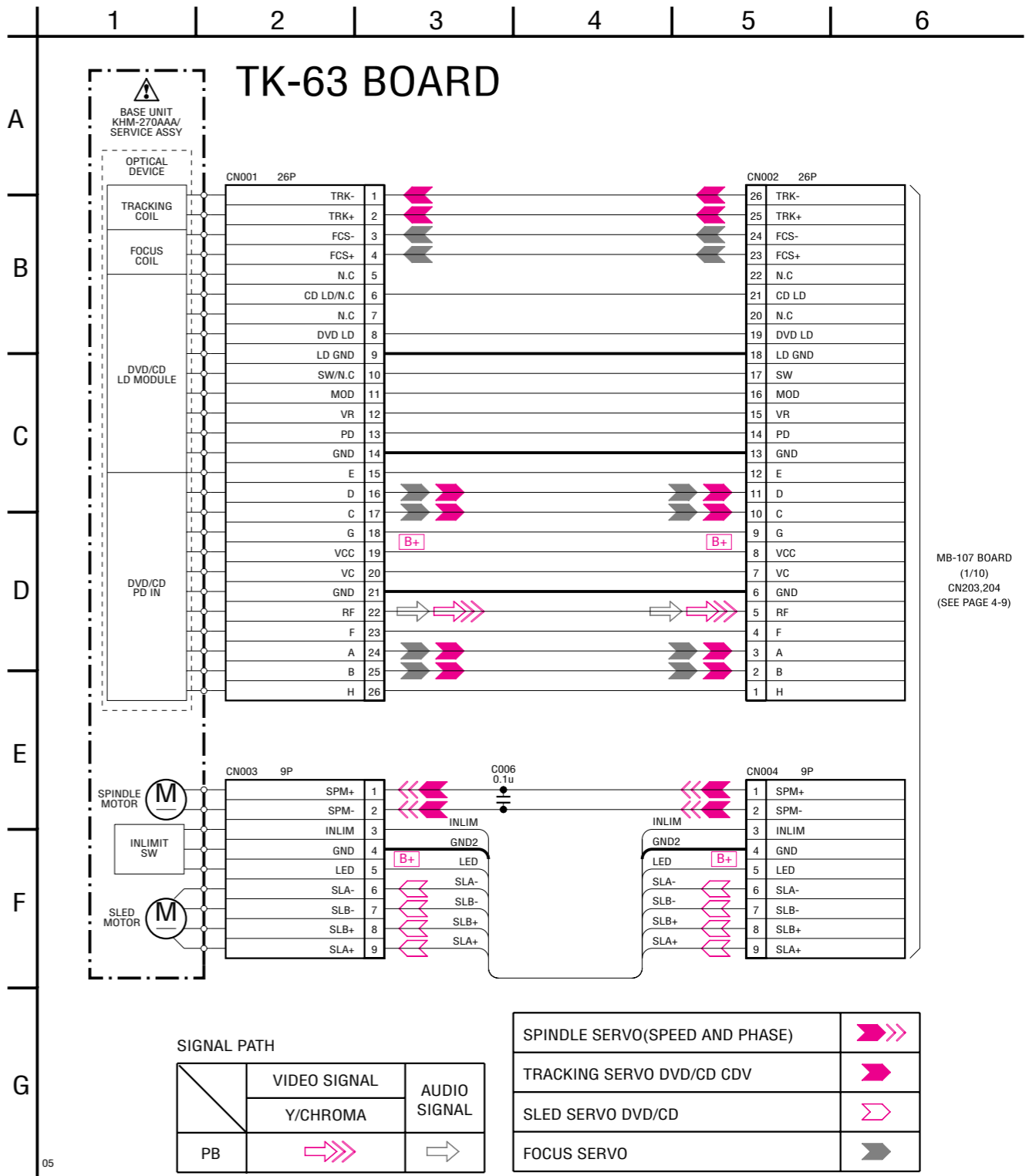
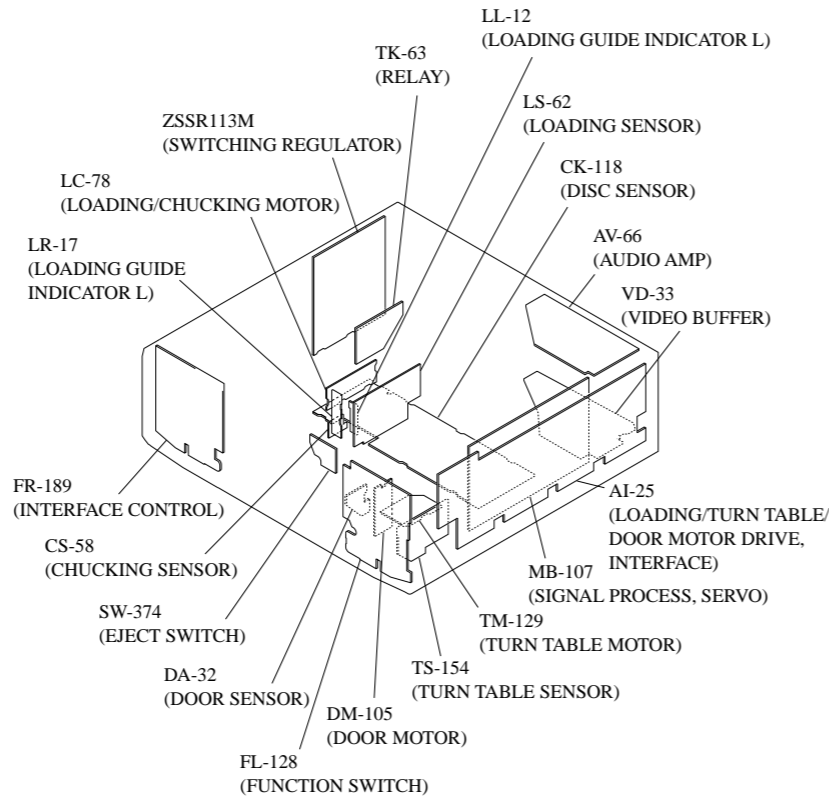
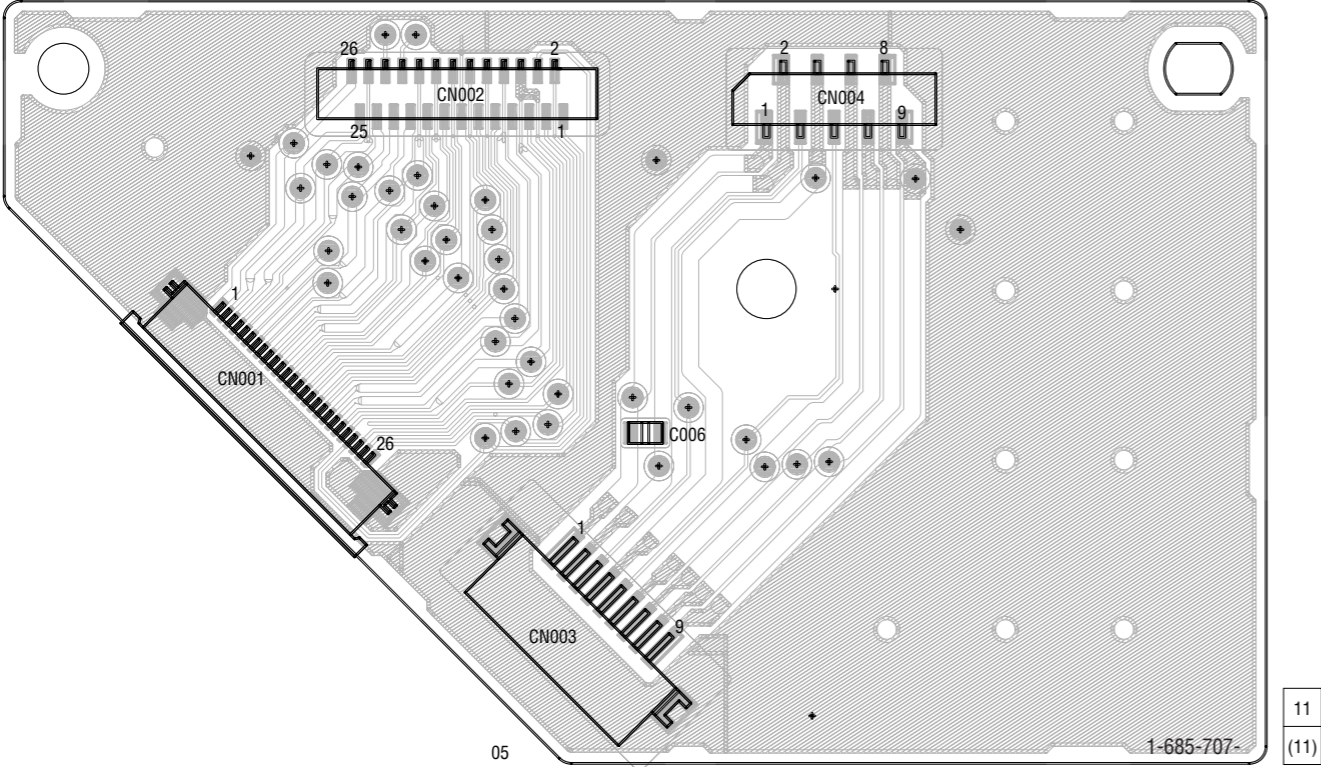
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

TK-63 (RELAY) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: TK-63 board; 2,000 series –

There are a few cases that the part isn't mounted in this model is printed on this diagram.


TK-63 BOARD



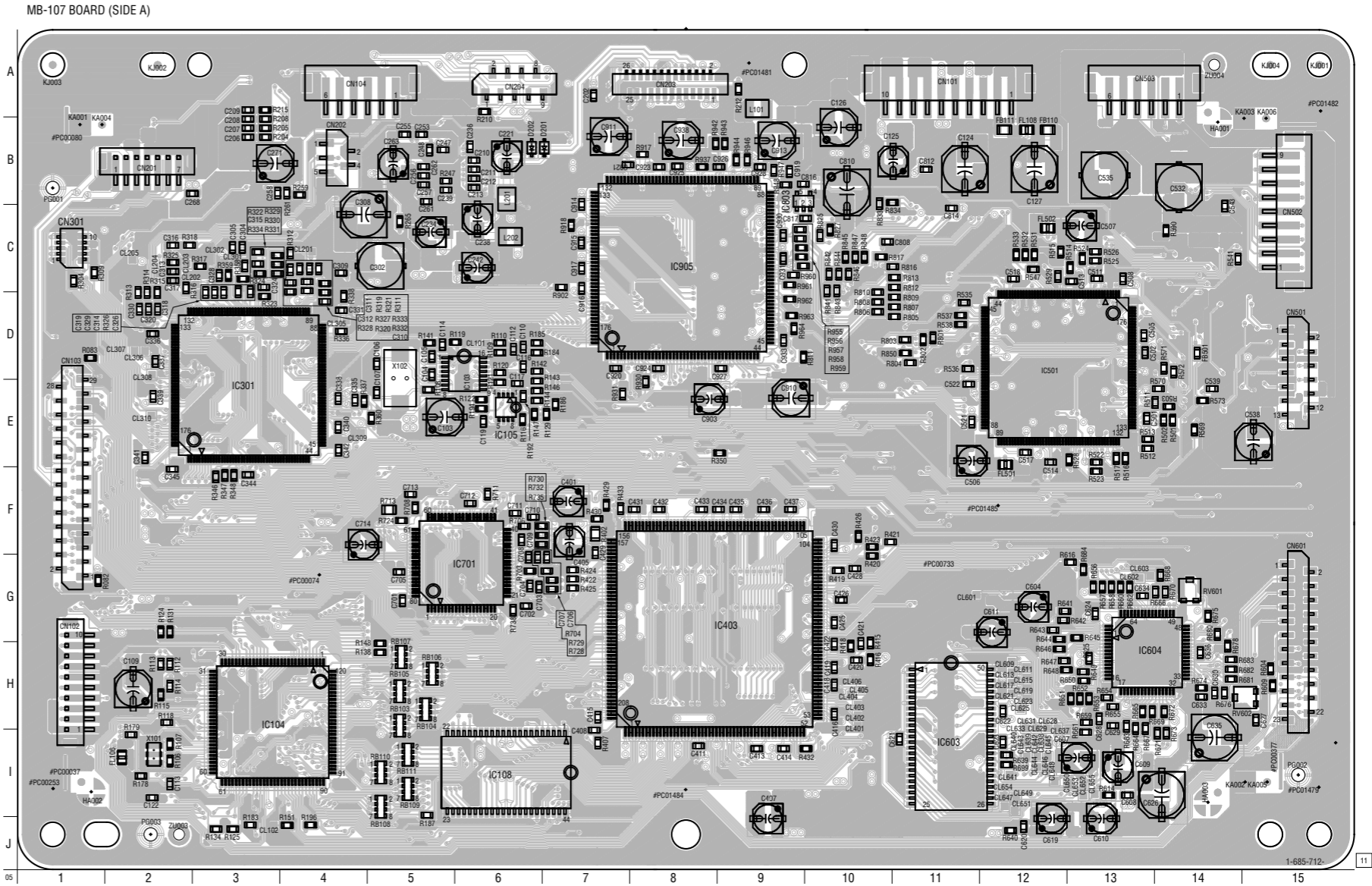
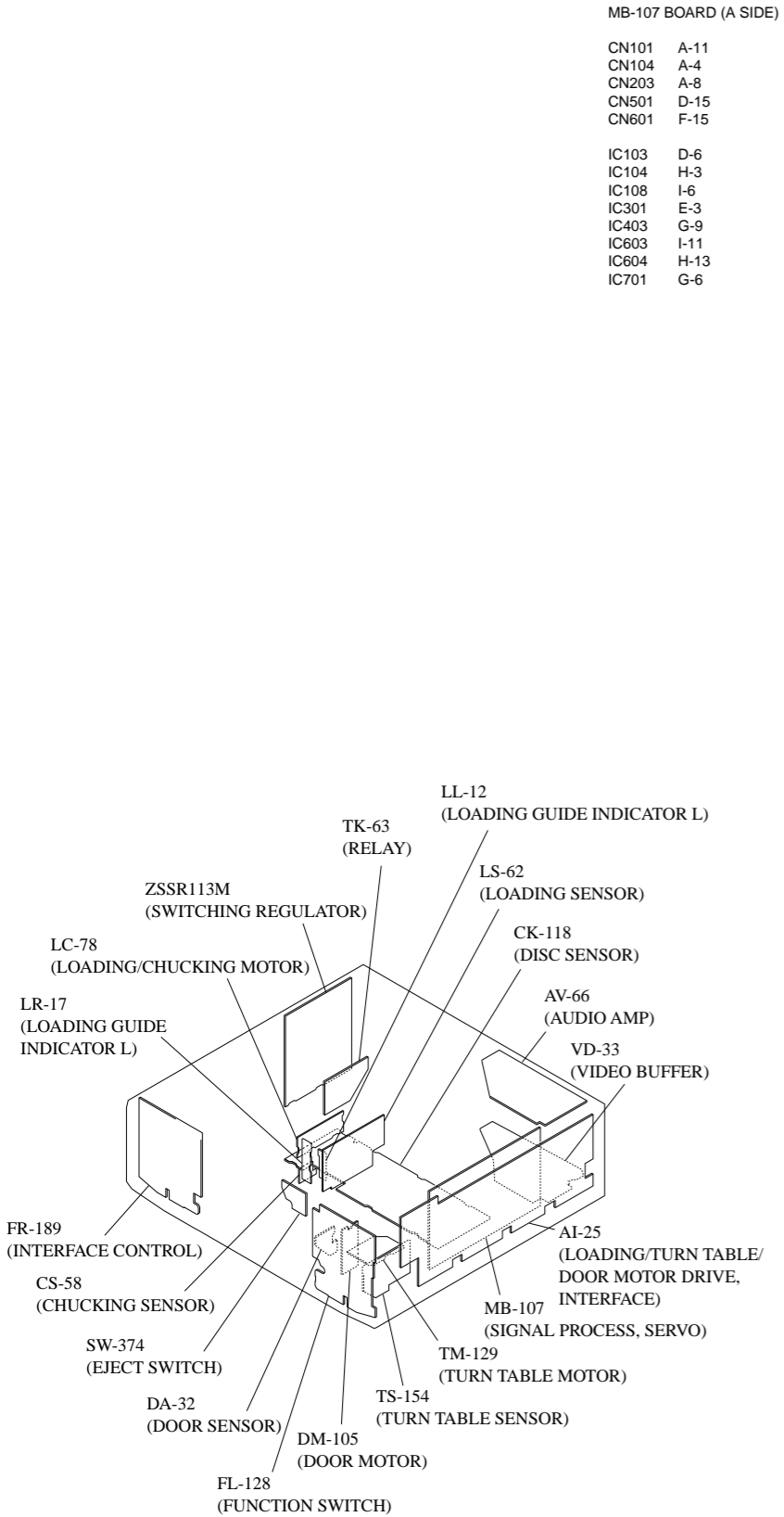
MB-107 BOARD
(1/10)
CN203,204
(SEE PAGE 4-9)

MB-107 (SIGNAL PROCESS, SERVO) PRINTED WIRING BOARD

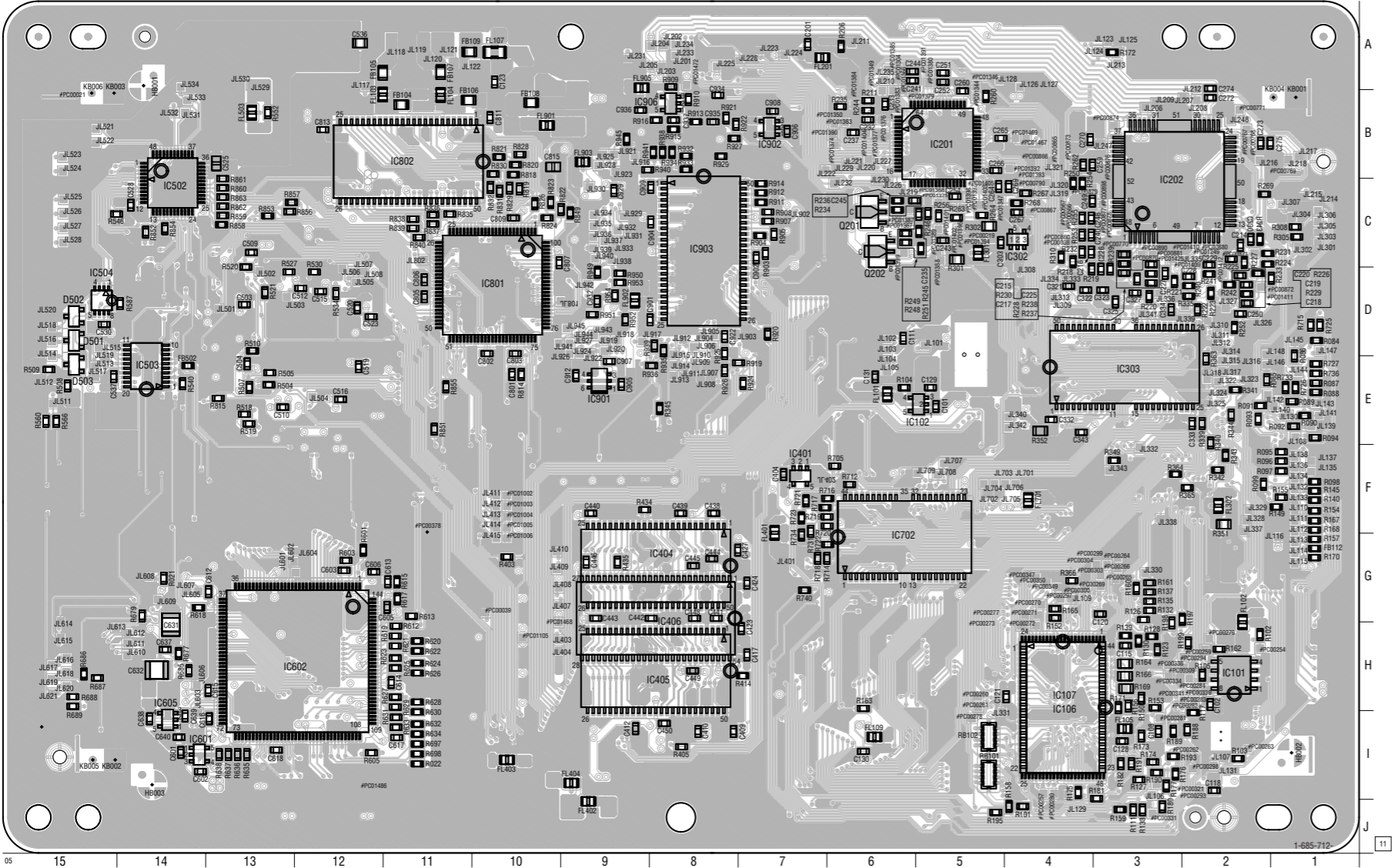
– Ref. No.: MB-107 board; 3,000 series –

 : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.



MB-107 BOARD (SIDE B)



MB-107 BOARD (B SIDE)

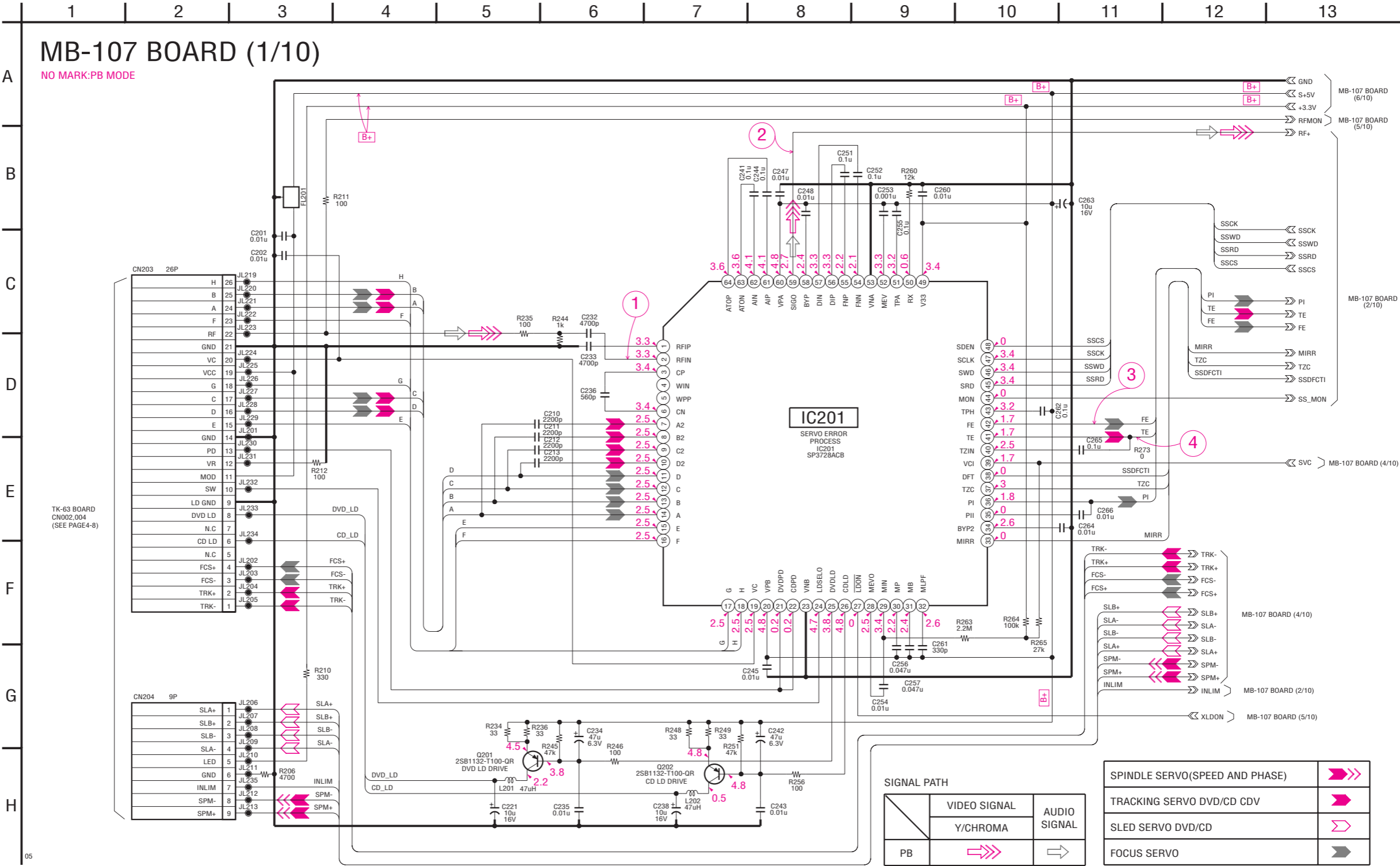
| | |
|-------|------|
| D501 | D-15 |
| IC101 | H-2 |
| IC106 | H-4 |
| IC201 | B-5 |
| IC202 | B-3 |
| IC302 | C-4 |
| IC303 | E-3 |
| IC401 | F-7 |
| IC404 | G-8 |
| IC405 | H-8 |
| IC503 | E-14 |
| IC601 | I-14 |
| IC602 | H-12 |
| IC605 | H-14 |
| IC702 | F-6 |

| | |
|------|-----|
| Q201 | C-6 |
| Q202 | D-6 |

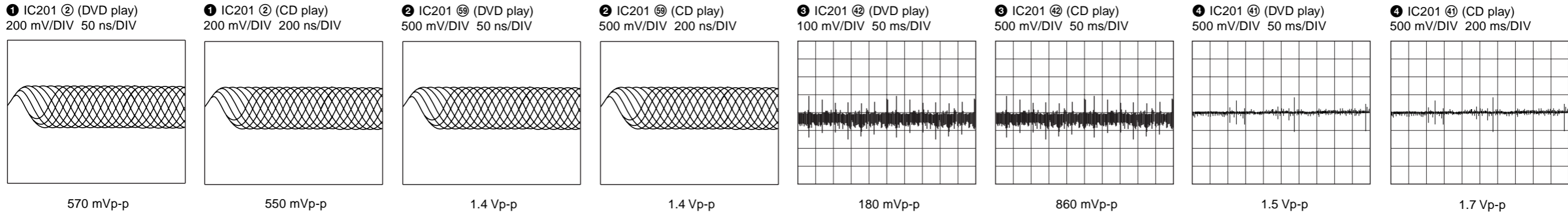
MB-107 (RF AMP, SERVO) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

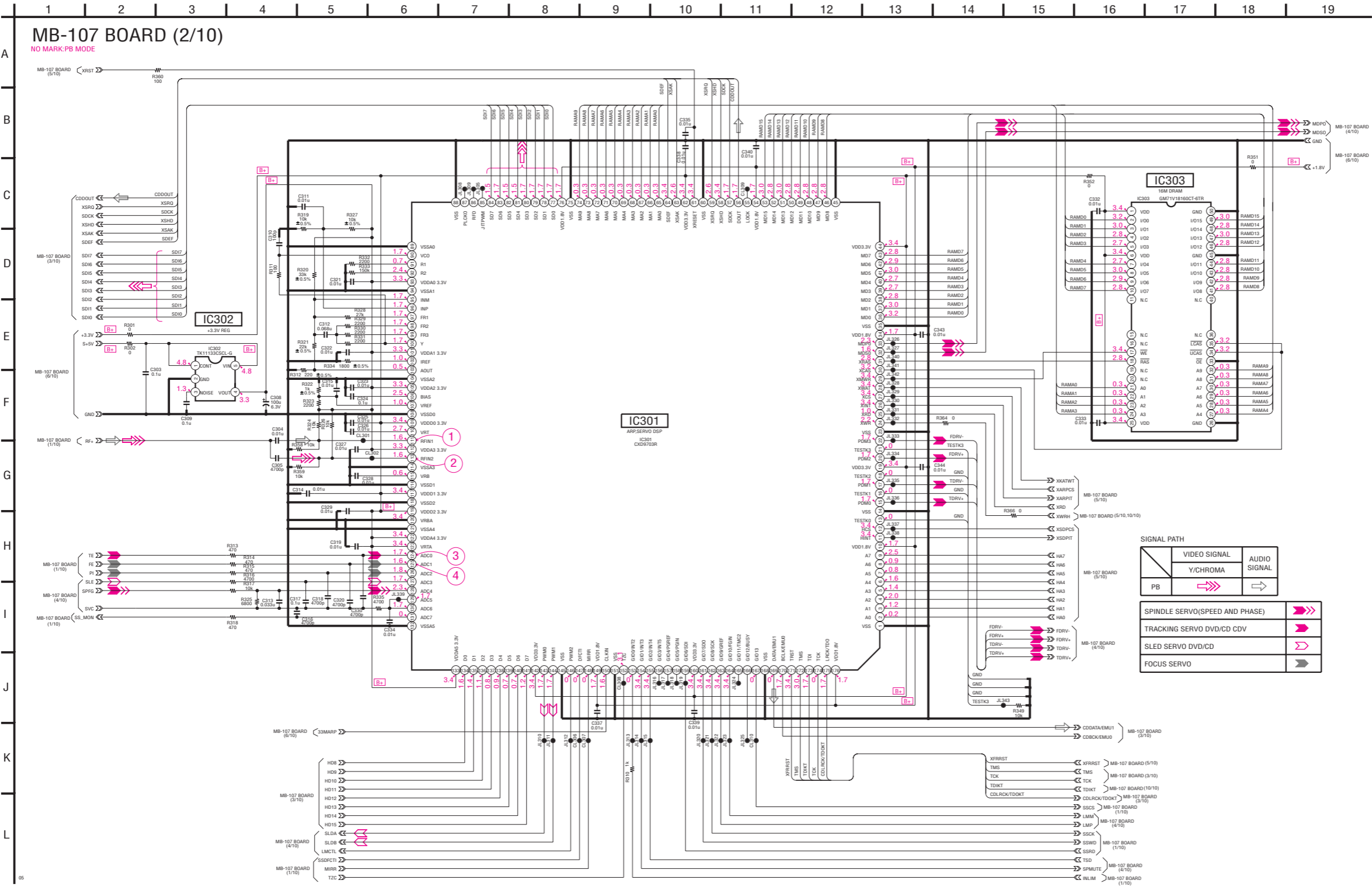


• Waveforms



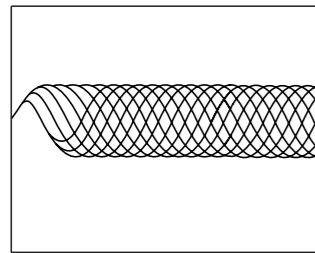
MB-107 (ARP, SERVO DSP) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



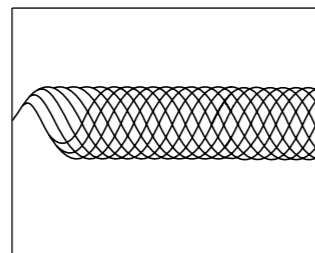
• Waveforms

① IC301 (11) (DVD play)
500 mV/DIV 100 ns/DIV



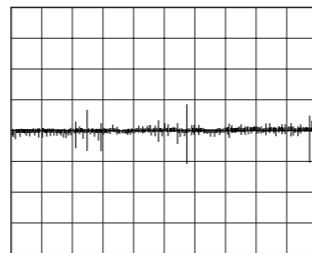
1.4 Vp-p

② IC301 (11) (CD play)
500 mV/DIV 200 ns/DIV



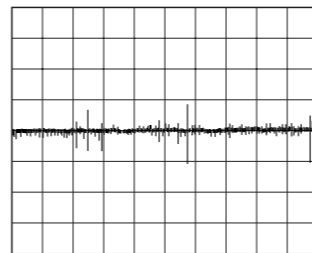
1.4 Vp-p

③ IC301 (12) (DVD play)
500 mV/DIV 50 ms/DIV



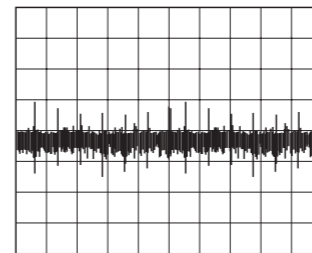
1.4 Vp-p

③ IC301 (12) (CD play)
500 mV/DIV 200 ms/DIV



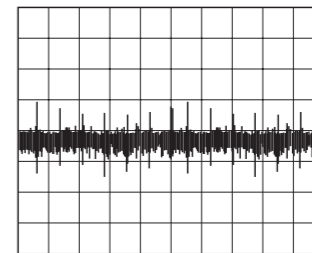
1.7 Vp-p

④ IC301 (15) (DVD play)
100 mV/DIV 50 ms/DIV

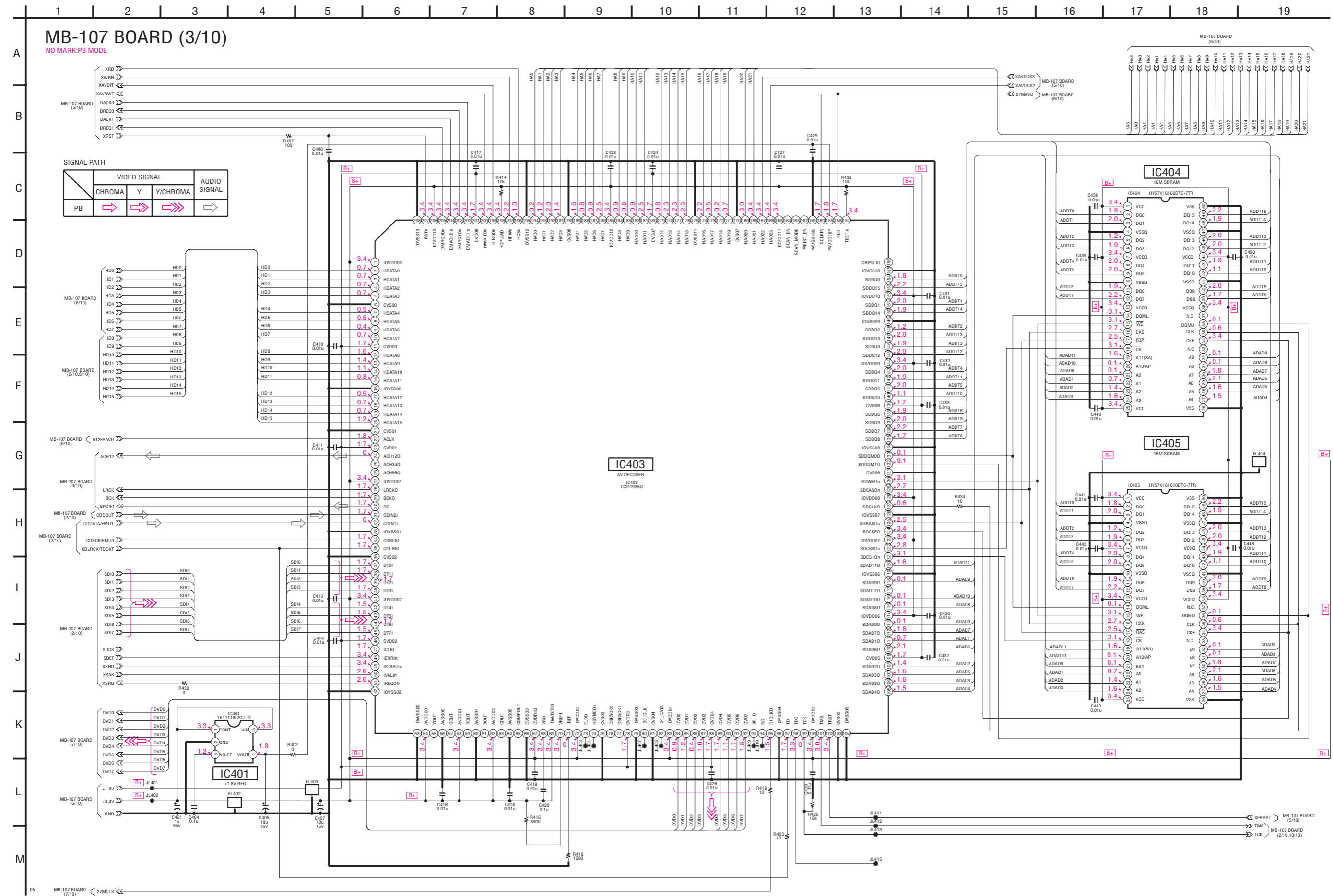


160 mVp-p

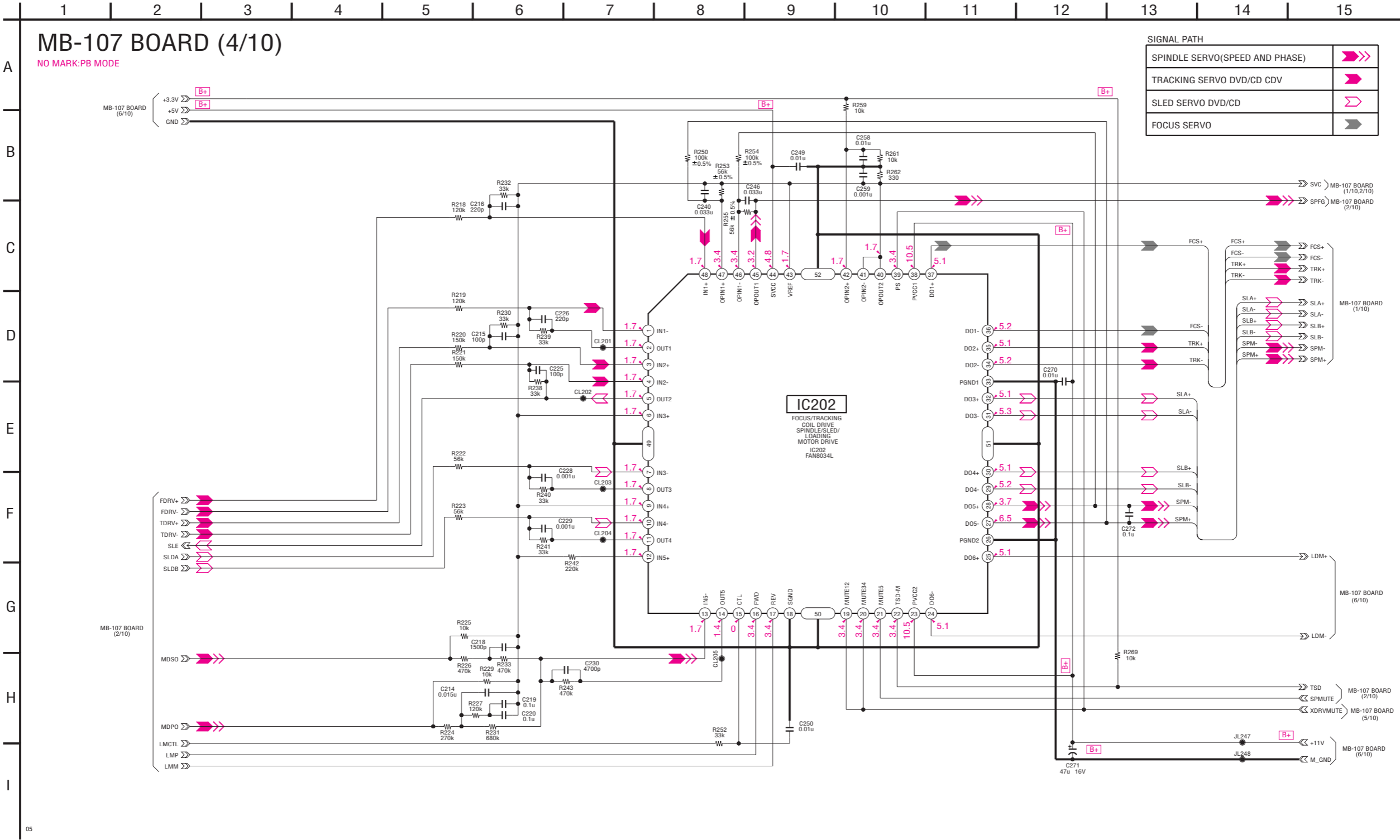
④ IC301 (15) (CD play)
500 mV/DIV 50 ms/DIV



860 mVp-p

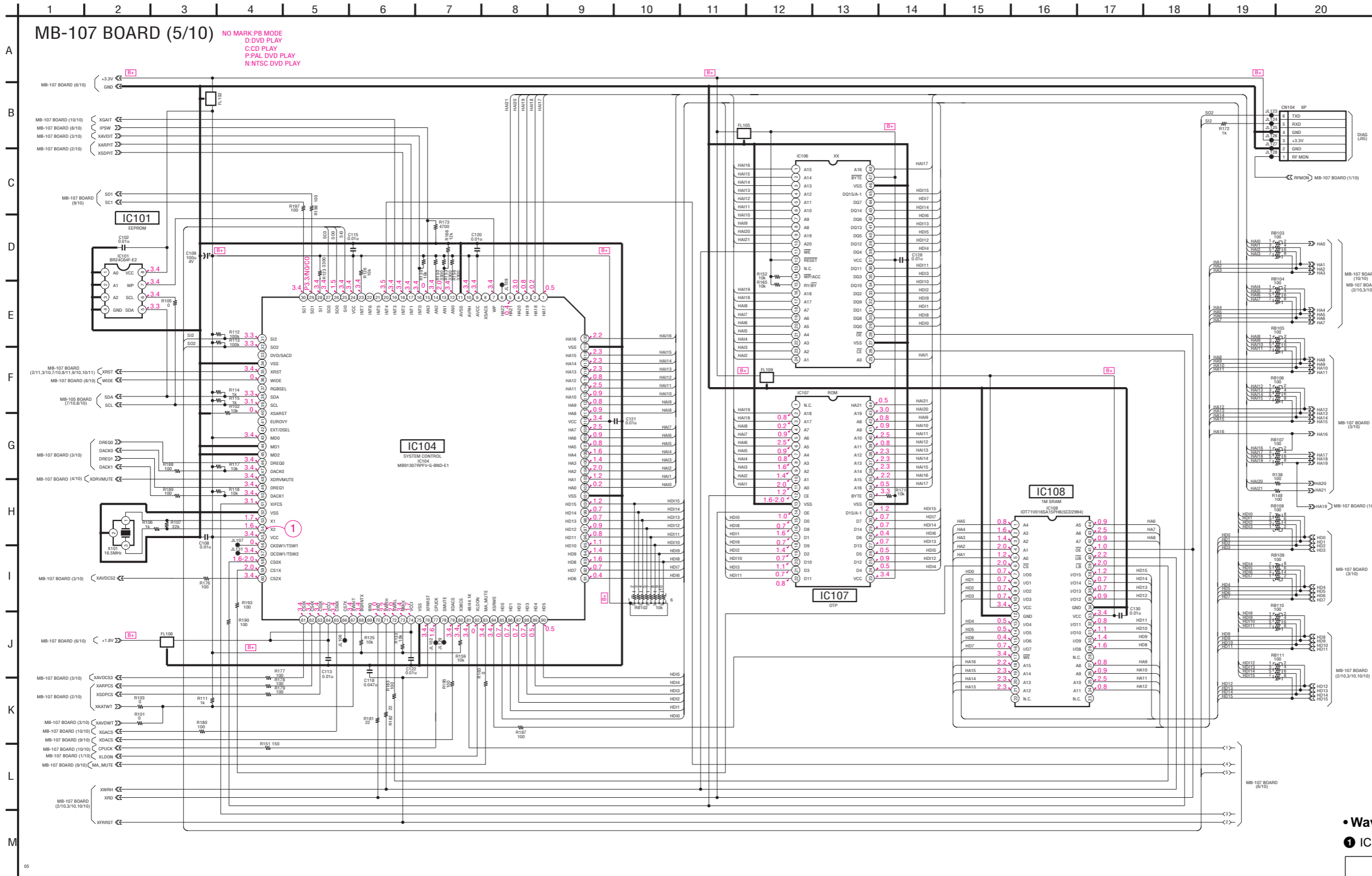


MB-107 (MOTOR DRIVE) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –



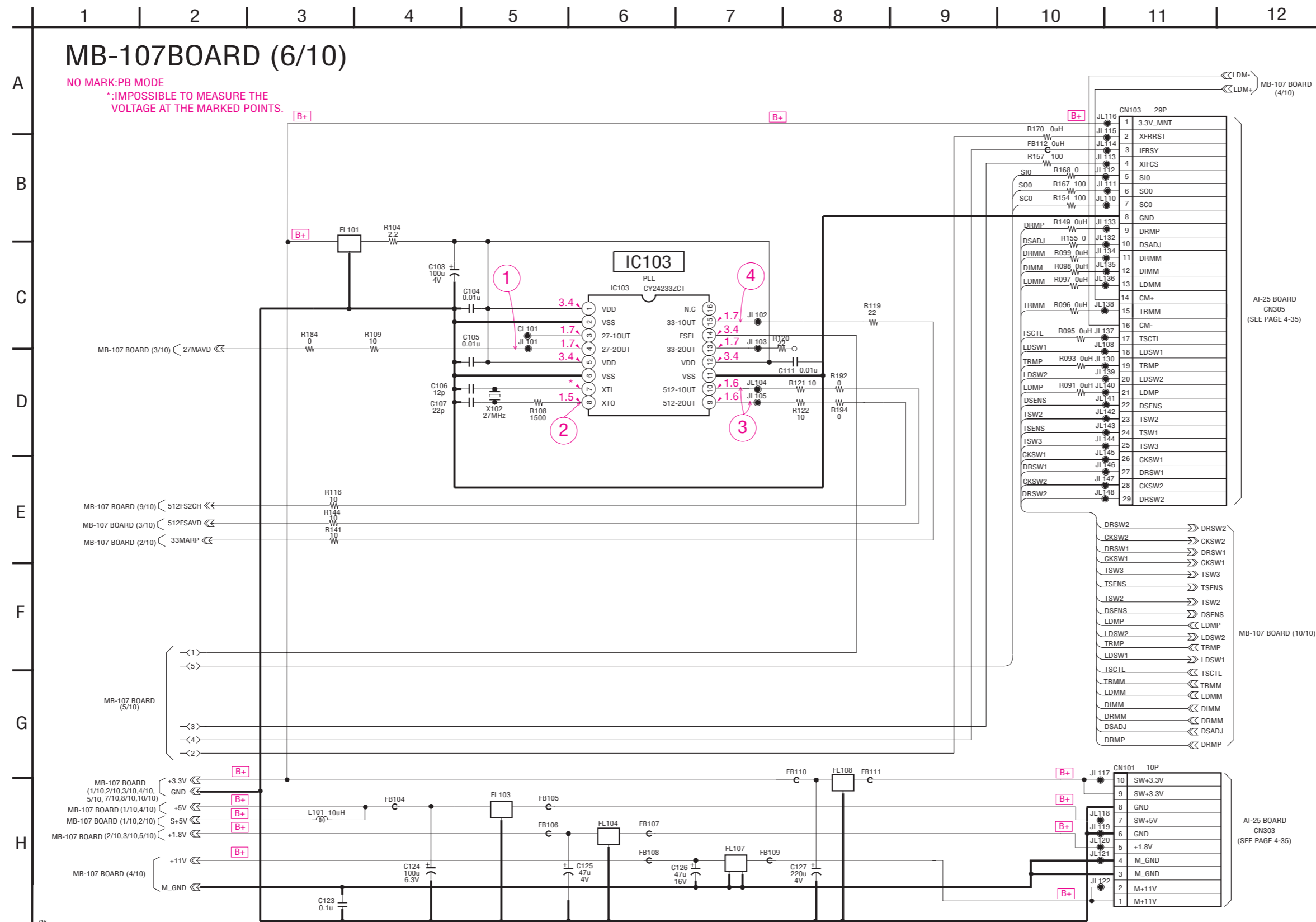
MB-107 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



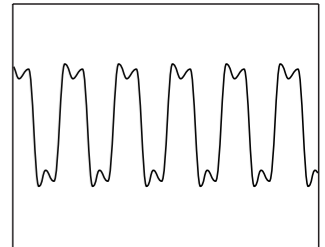
MB-107 (CLOCK GENERATOR) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –



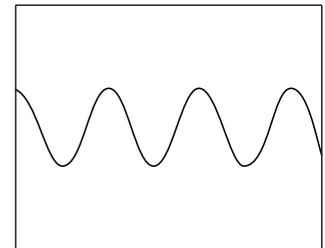
- **Waveforms**

① IC103 ④



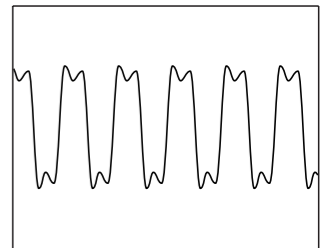
3.5 Vp-p (27 MHz)

② IC103 ⑧



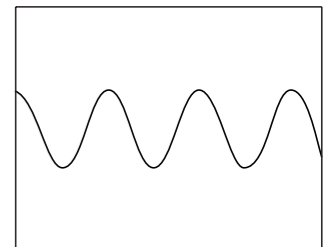
1.5 Vp-p (27 MHz)

③ IC103 ⑨, ⑩



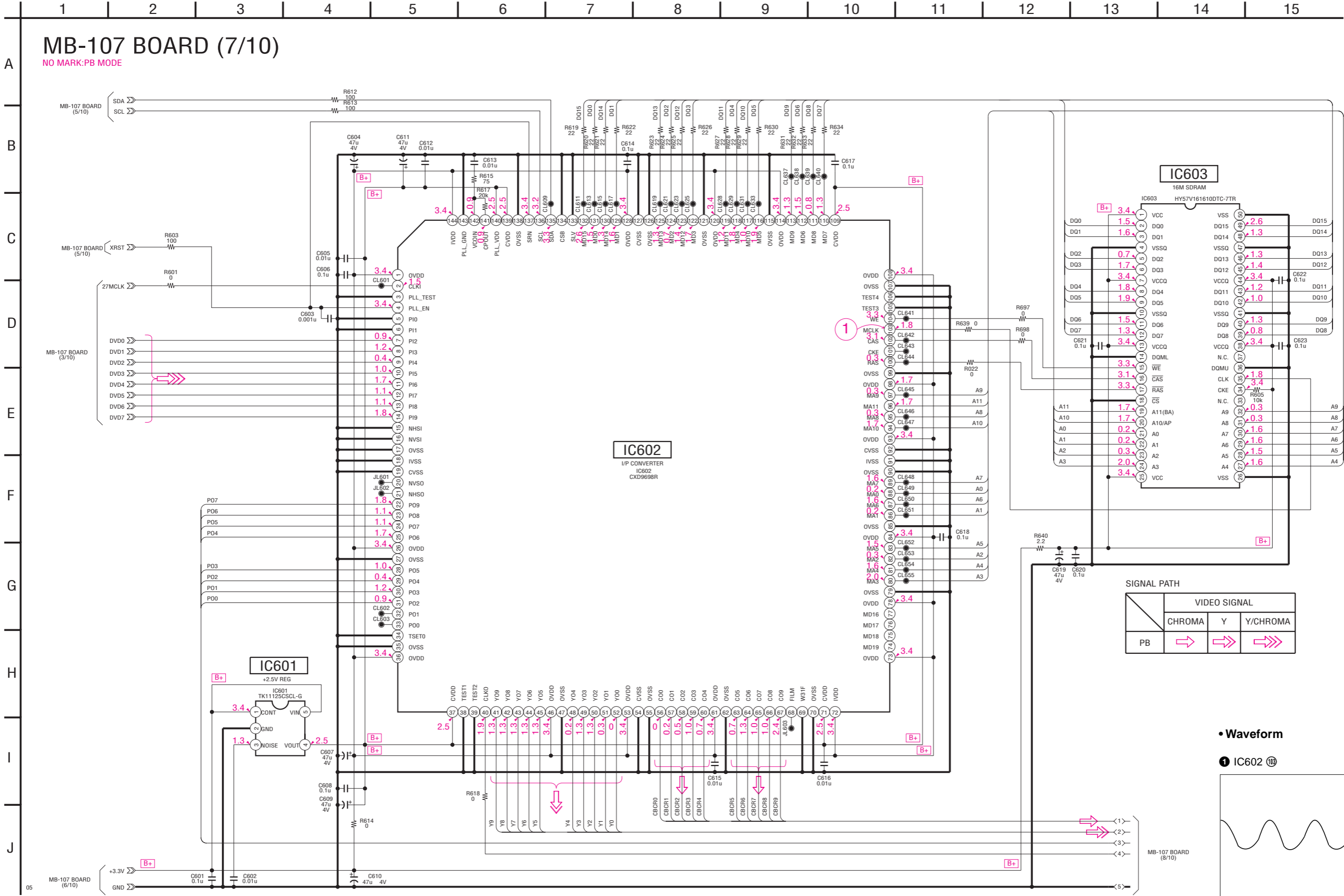
DVD : 3.3 Vp-p (24.57 MHz)
CD : 3.3 Vp-p (22.58 MHz)

④ IC103 ⑮



3.2 Vp-p (33.87 MHz)

MB-107 (I/P CONVERTER) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

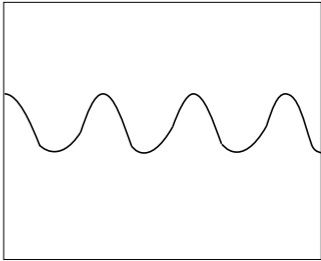


SIGNAL PATH

| | VIDEO SIGNAL | | |
|----|--------------|---|----------|
| | CHROMA | Y | Y/CHROMA |
| PB | | | |

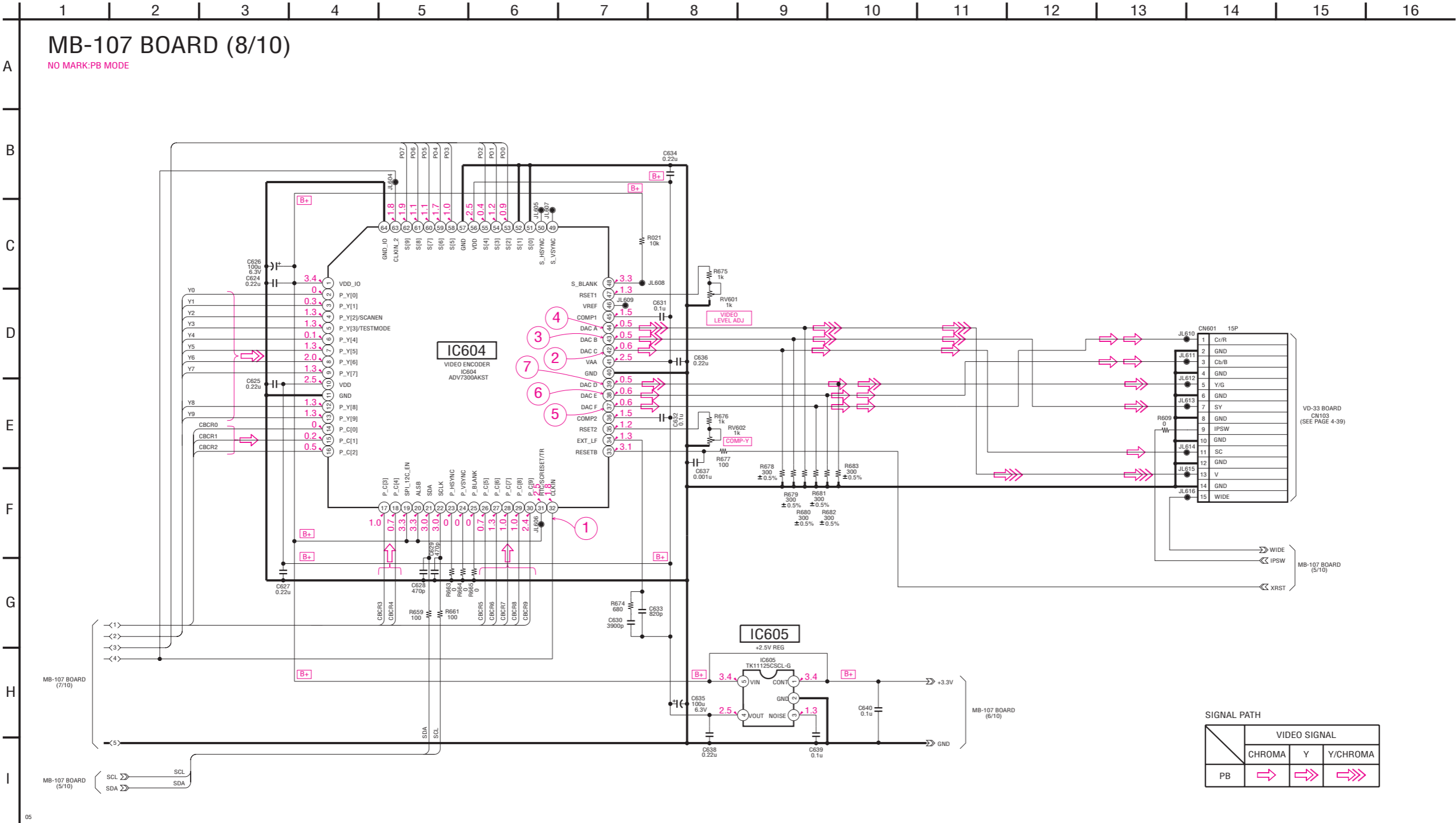
• Waveform

① IC602 ⑩

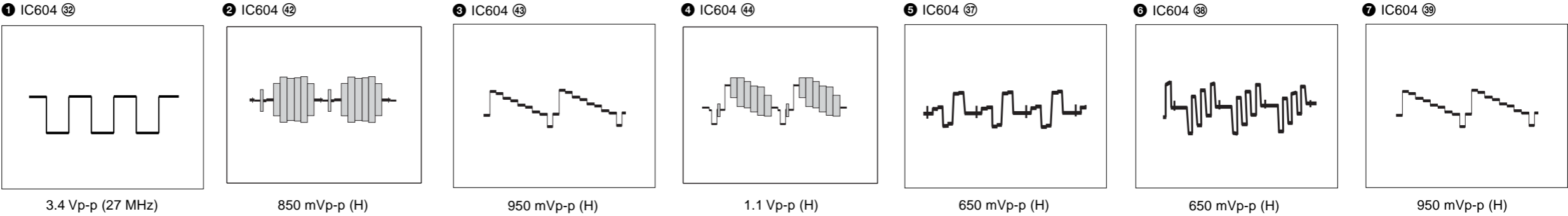


1.6 Vp-p (66 MHz)

MB-107 (VIDEO ENCODER) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –



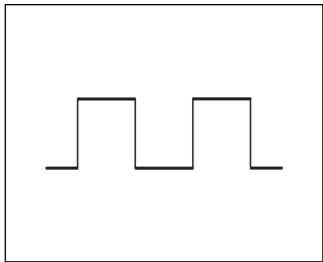
• Waveforms



MB-107 (AUDIO D/A CONVERTER) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.
– Ref. No.: MB-107 board; 3,000 series –

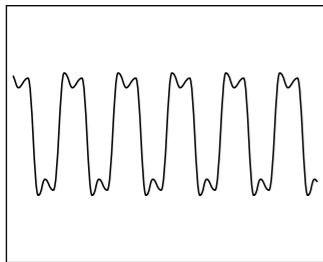
• Waveforms

① IC503 ④



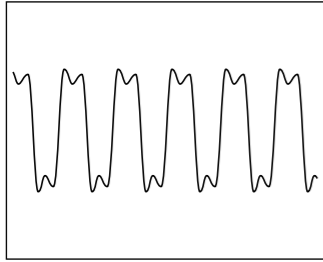
DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

② IC503 ②

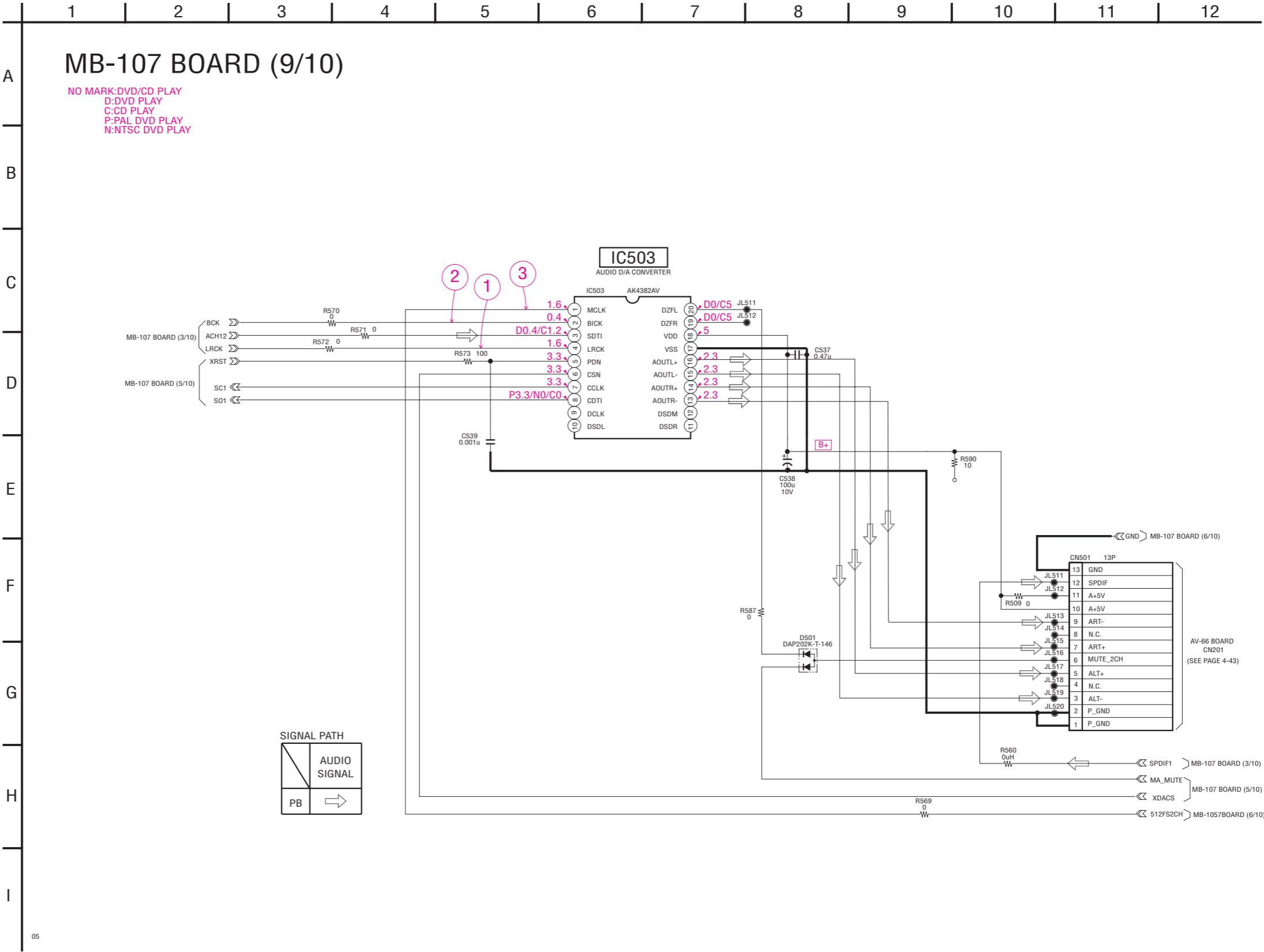


DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.9 MHz)

③ IC503 ①

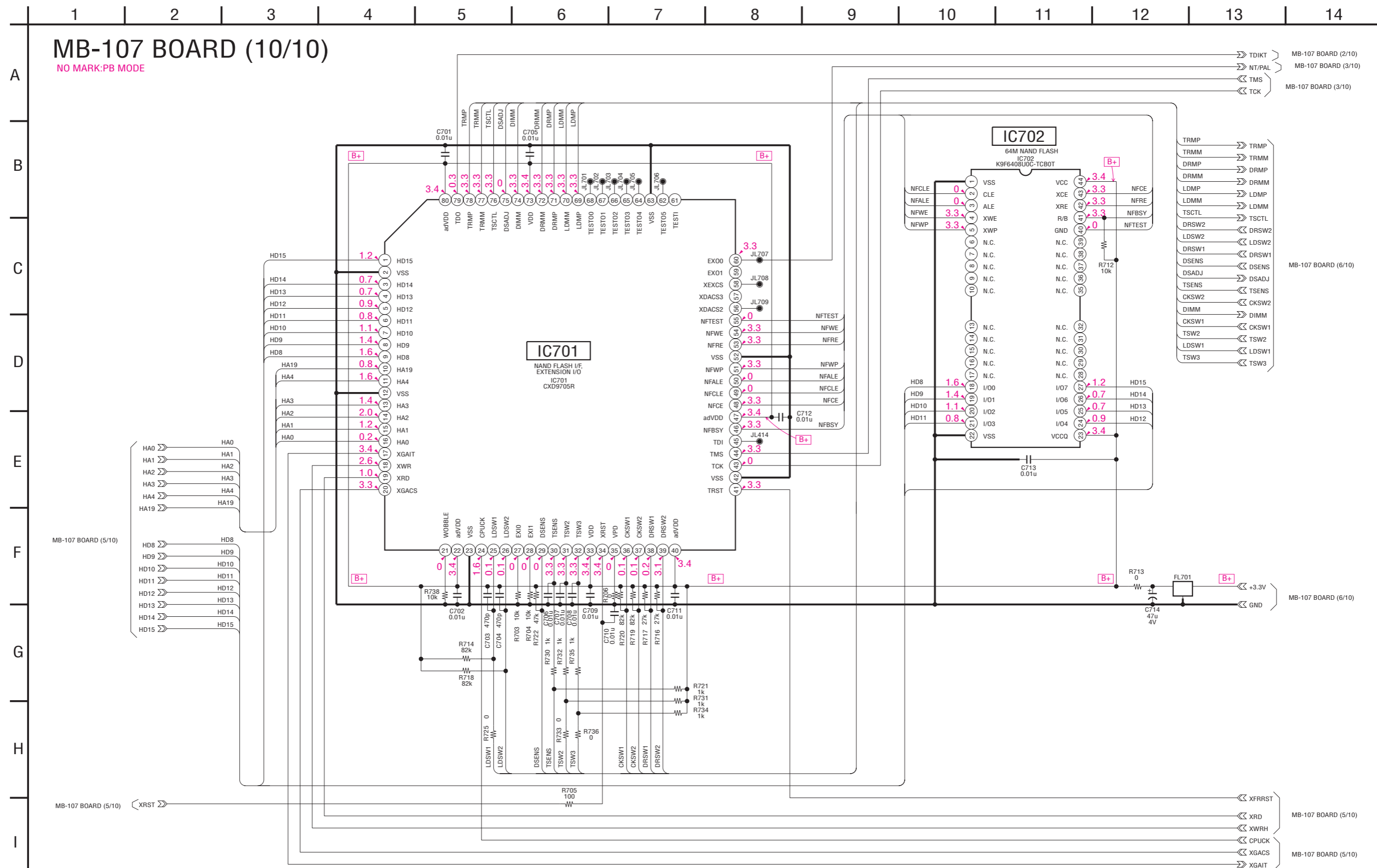


DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)




MB-107 (NAND FLASH I/F, EXTENSION I/O) SCHEMATIC DIAGRAM • See page 4-9 for printed wiring board.

– Ref. No.: MB-107 board; 3,000 series –

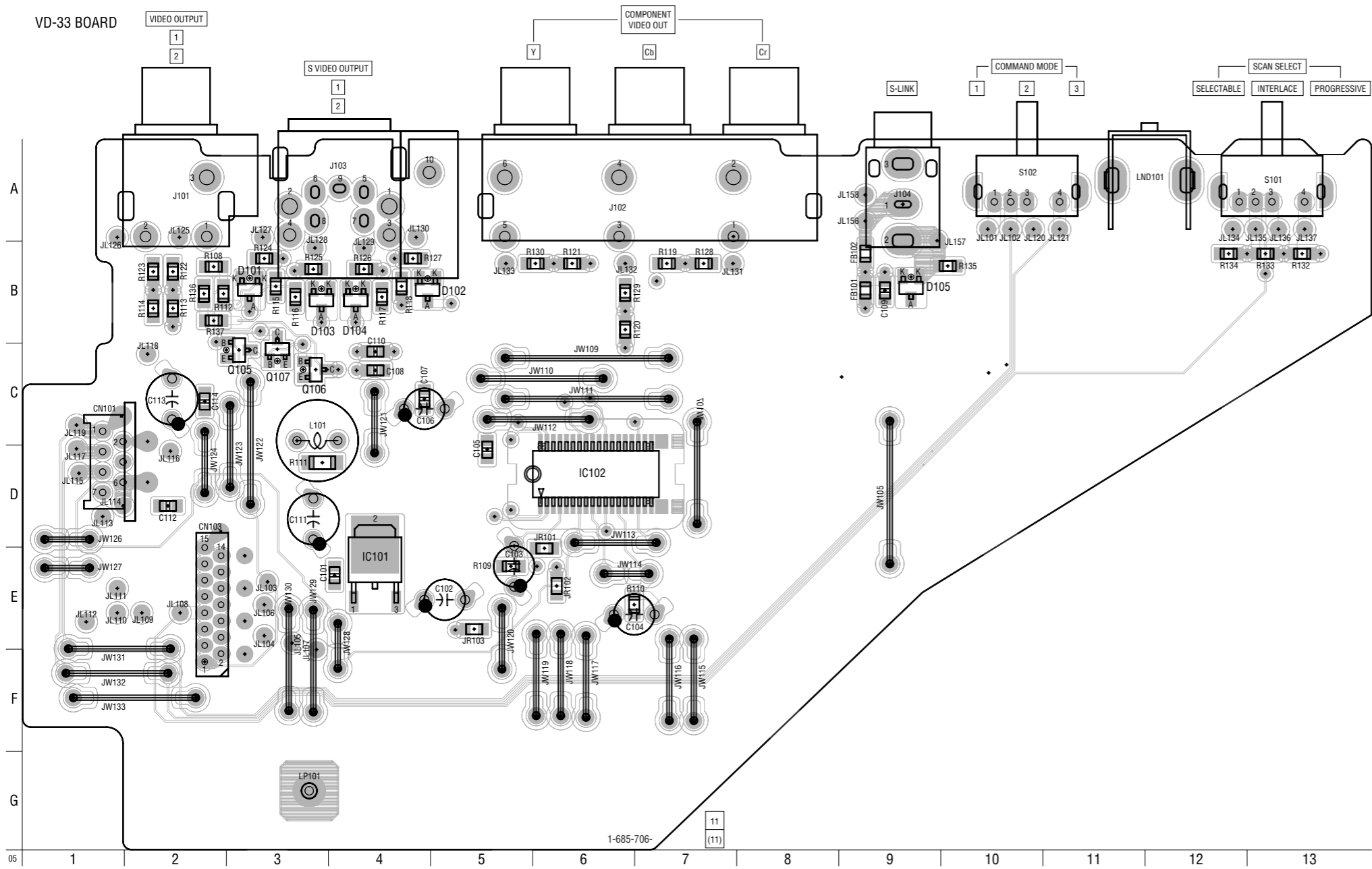


VD-33 (VIDEO BUFFER) PRINTED WIRING BOARD

– Ref. No.: VD-33 board; 4,000 series –

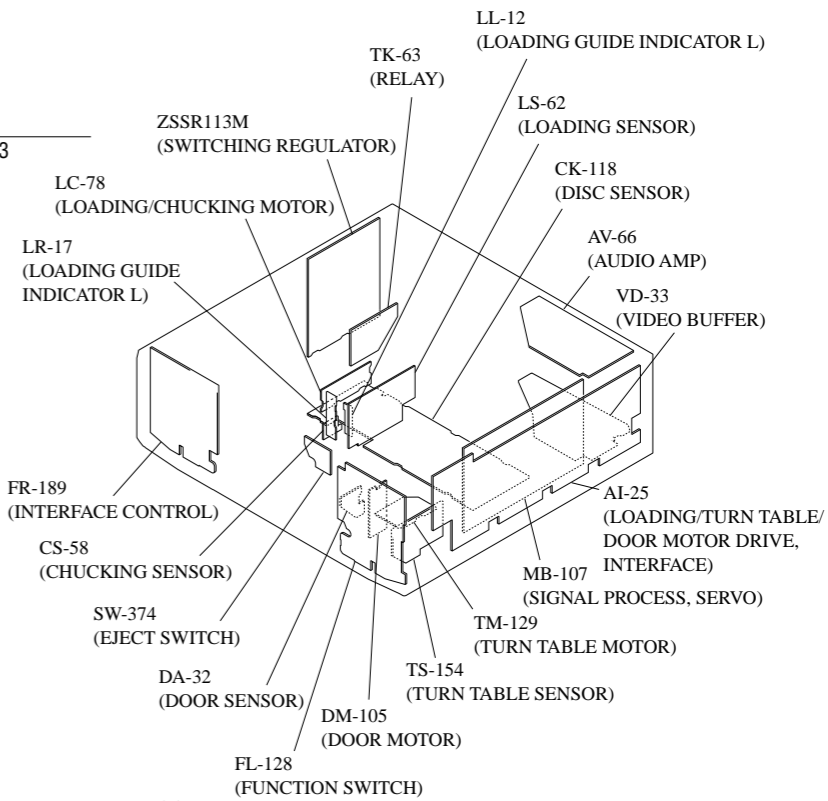
: Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.



VD-33 BOARD


- | | |
|-------|-----|
| CN101 | C-1 |
| CN103 | D-2 |
| D101 | B-3 |
| D102 | B-5 |
| D103 | B-3 |
| D104 | B-4 |
| IC101 | E-4 |
| IC102 | D-6 |
| Q105 | C-3 |
| Q106 | C-3 |
| Q107 | C-3 |

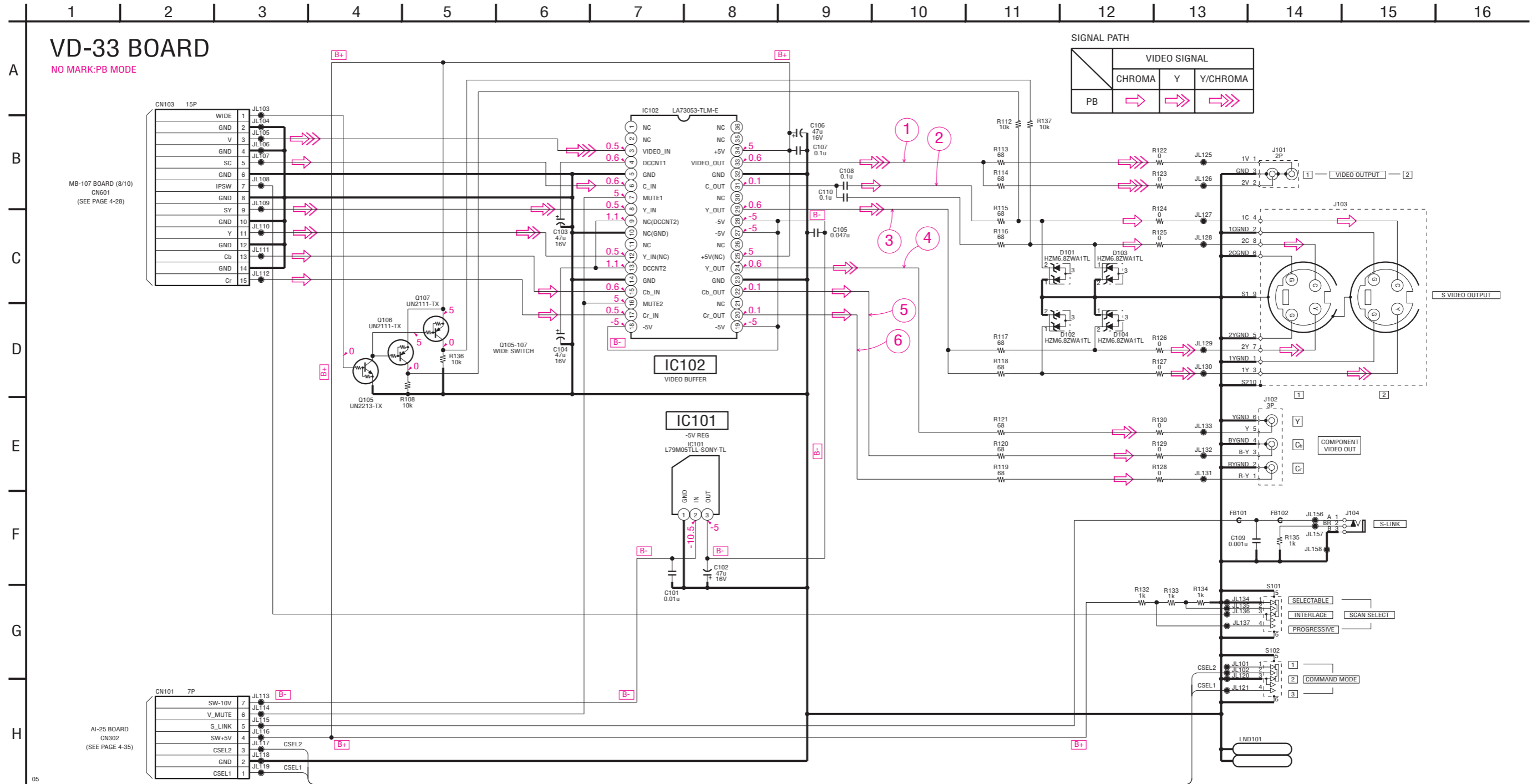


VD-33 (VIDEO BUFFER) SCHEMATIC DIAGRAM

– Ref. No.: VD-33 board; 4,000 series –

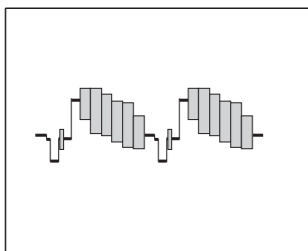
The components identified by mark or dotted line with mark are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



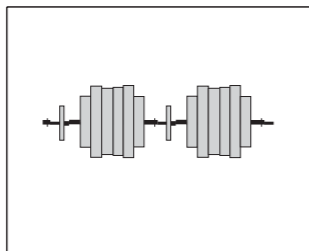
- **Waveforms**

1 IC102 33



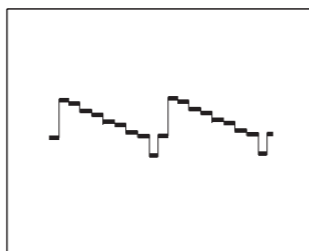
2.4 Vp-p (H)

② IC102 ③①



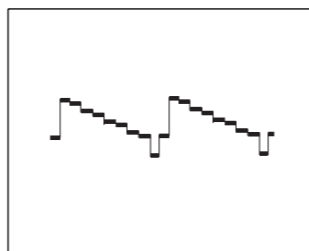
1.8 Vp-p (H)

③ IC102 ②⑨



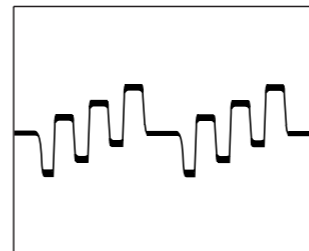
2.0 Vp-p (H)

④ IC102 ②④



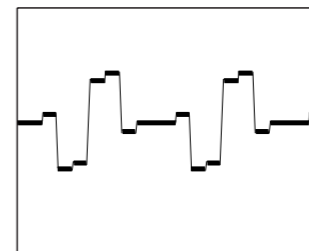
2.0 Vp-p (H)

5 IC102 22



1.3 Vp-p (H)


6 IC102 20



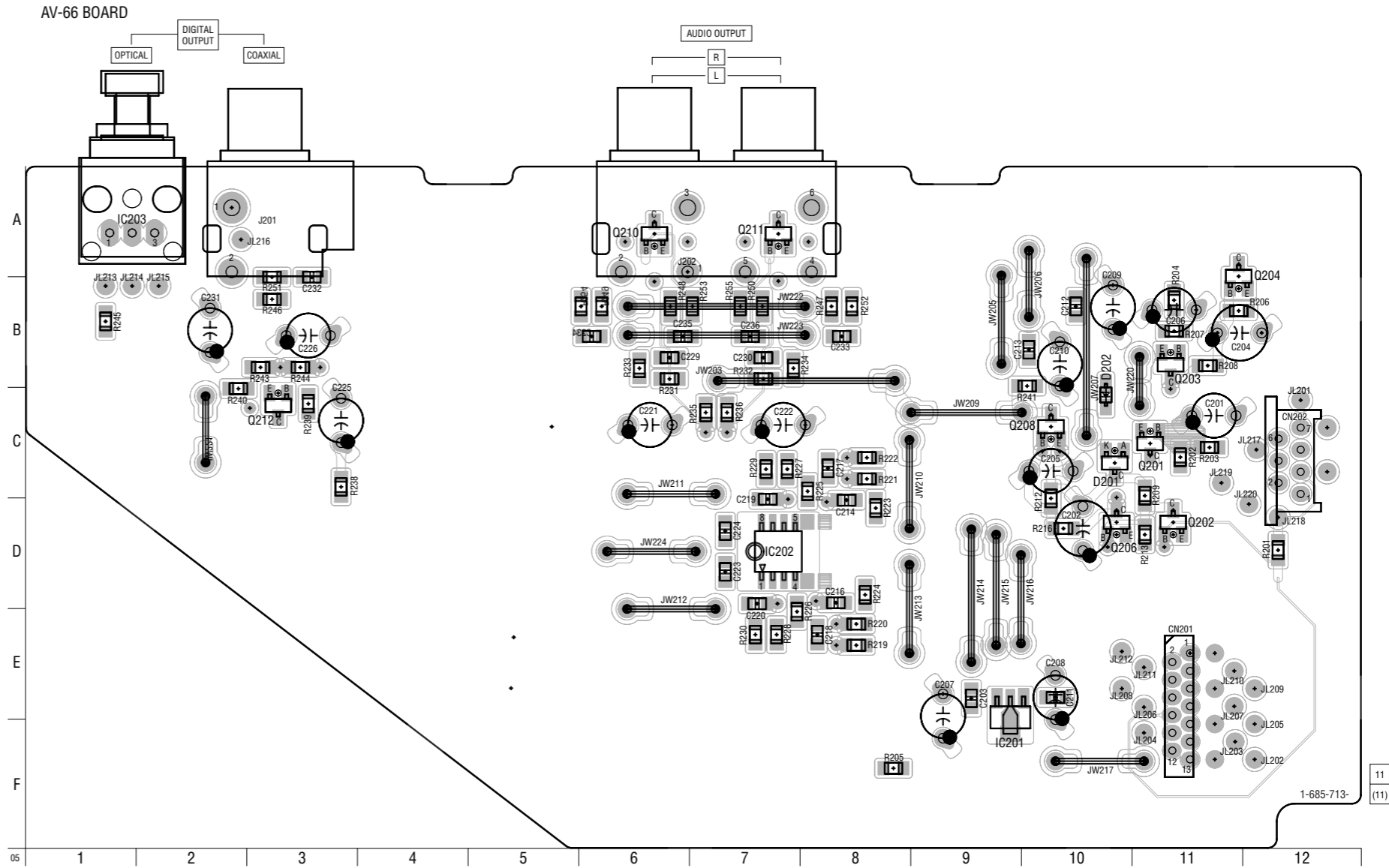
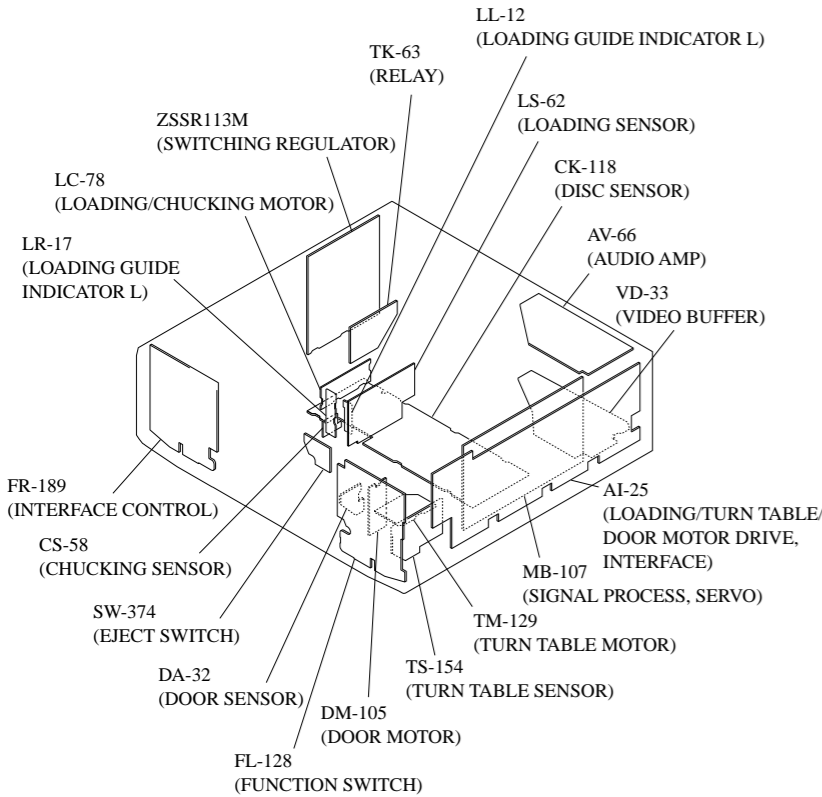
1.3 Vp-p (H)

AV-66 (AUDIO AMP) PRINTED WIRING BOARD

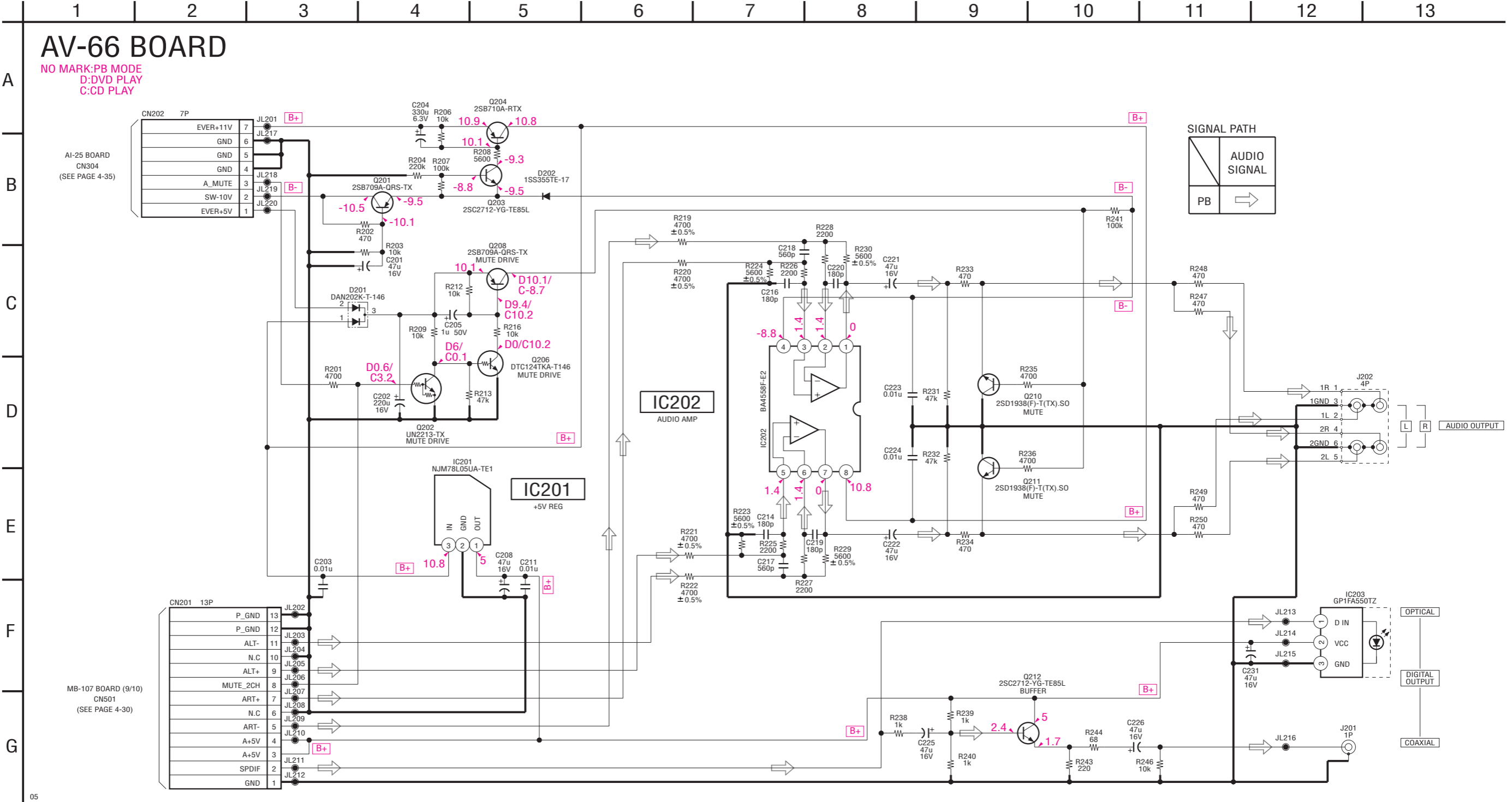
– Ref. No.: AV-66 board; 1,000 series –

 : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.



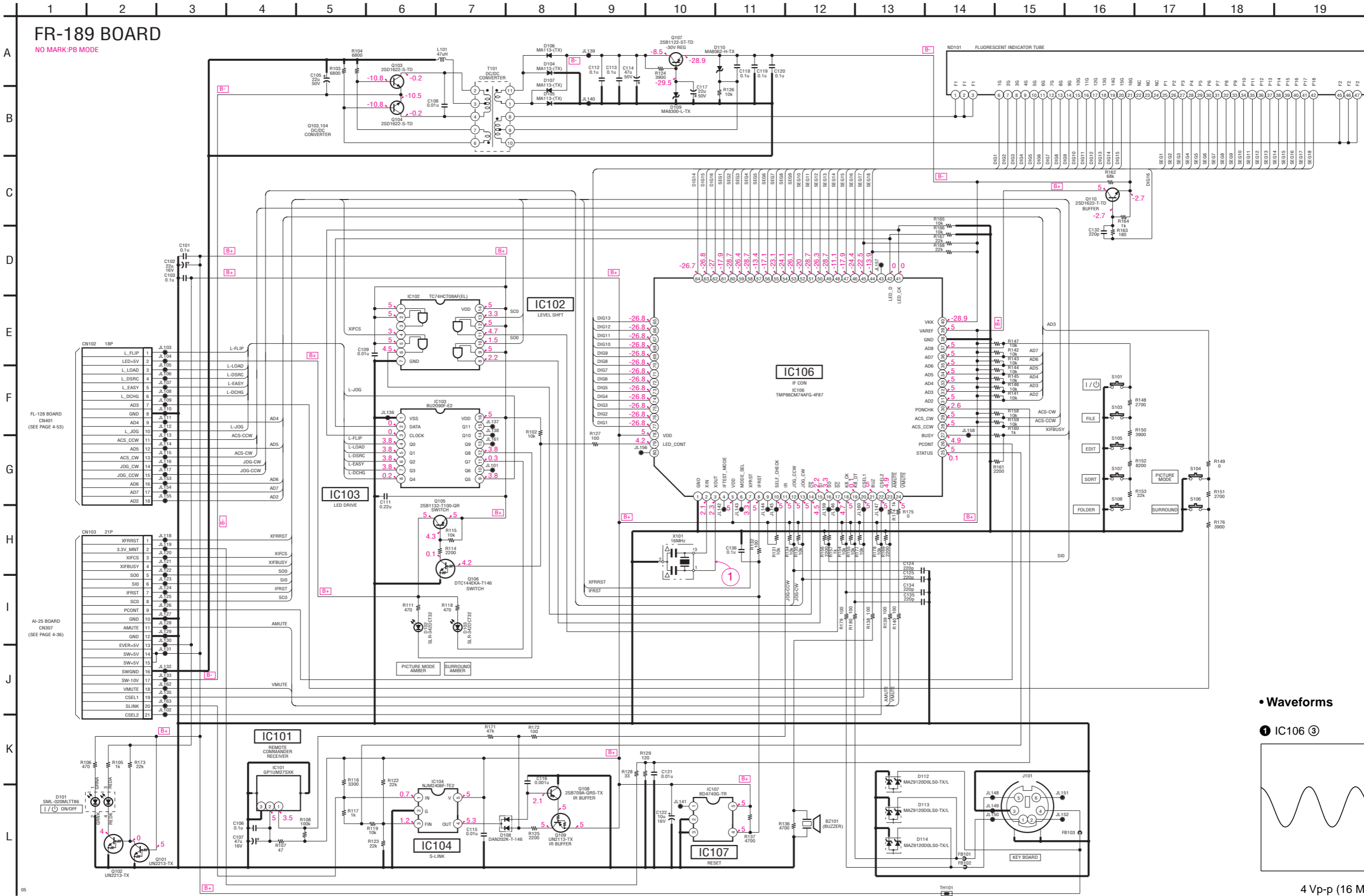
AV-66 (AUDIO AMP) SCHEMATIC DIAGRAM
- Ref. No.: AV-66 board; 1,000 series -



FR-189 (INTERFACE CONTROL) SCHEMATIC DIAGRAM
- Ref. No.: FR-189 board; 1,000 series -

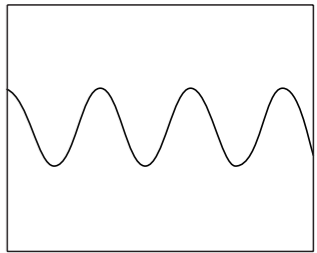
The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



• Waveforms

① IC106 ③

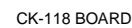
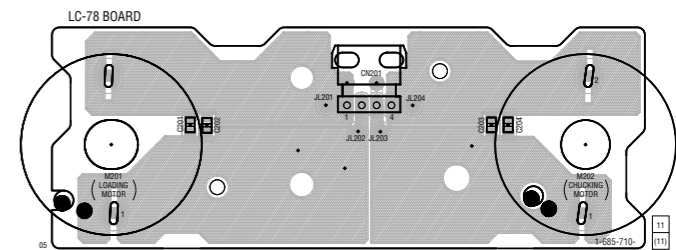
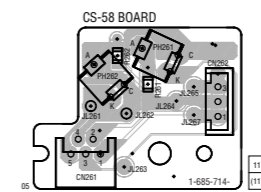
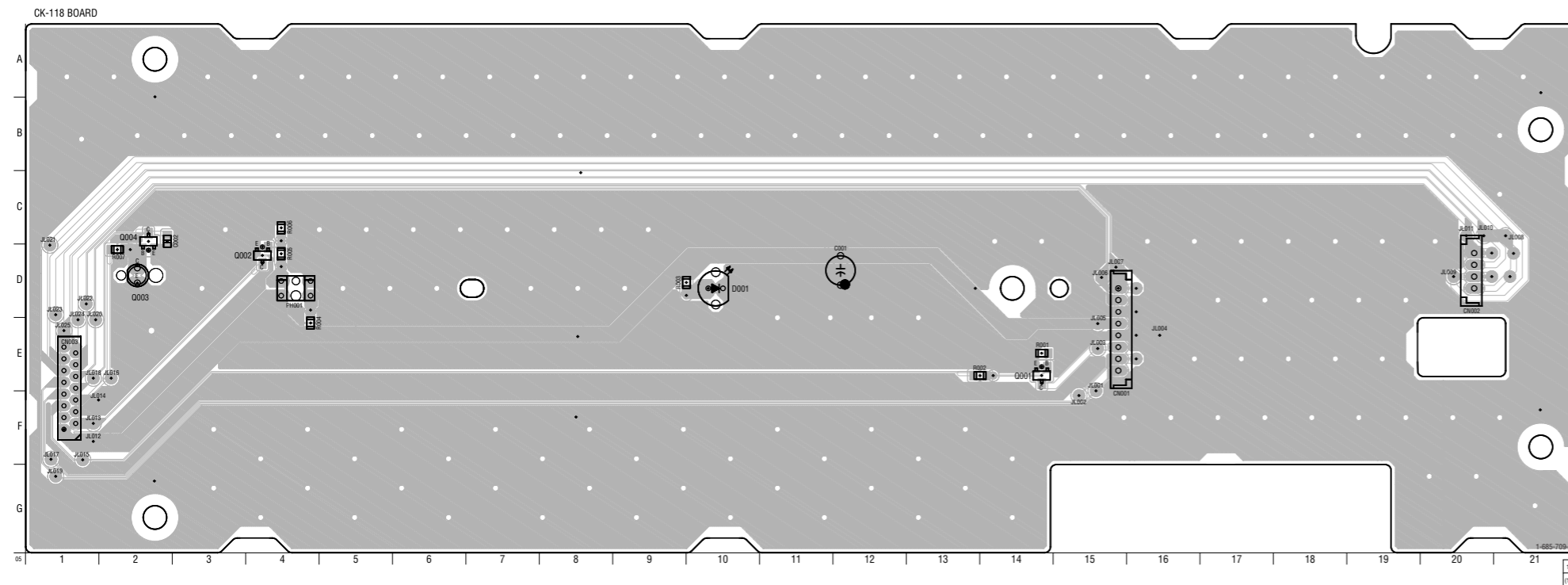


CK-118 (DISC SENSOR), CS-58 (CHUCKING SENSOR), LC-78 (LOADING/CHUCKING MOTOR), LS-62 (LOADING SENSOR), LL-12 (LOADING GUIDE INDICATOR L), LR-17 (LOADING GUIDE INDICATOR R)
PRINTED WIRING BOARDS

– Ref. No.: CK-118 board, CS-58 board, LC-78 board, LS-62 board, LL-12 board, LR-17 board; 2,000 series –

4f: Uses unleaded solder.

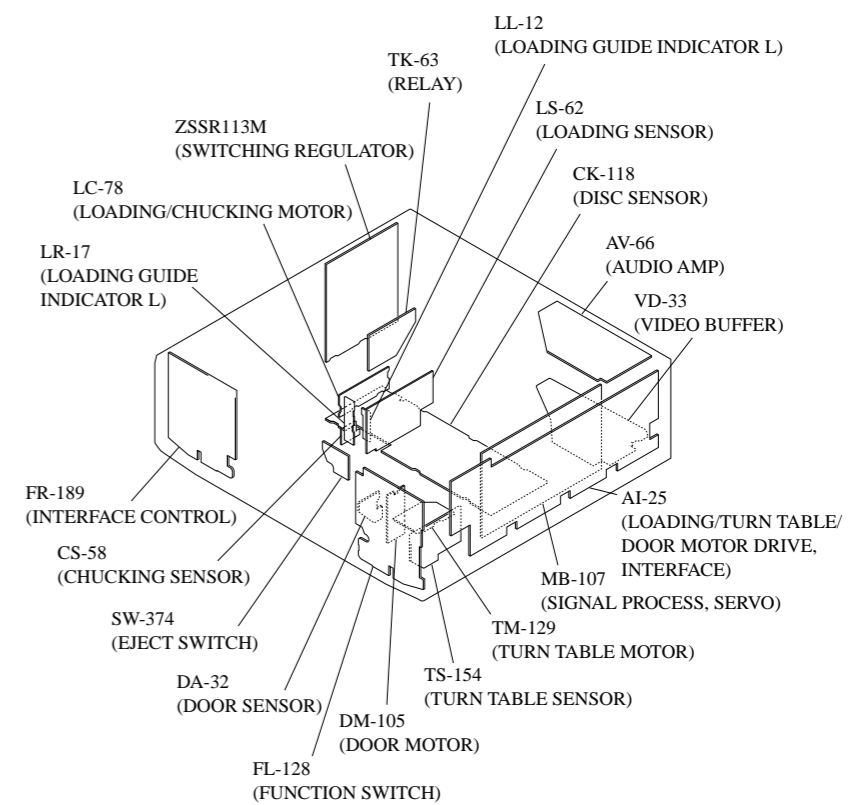
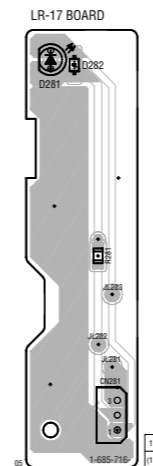
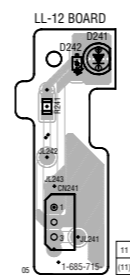
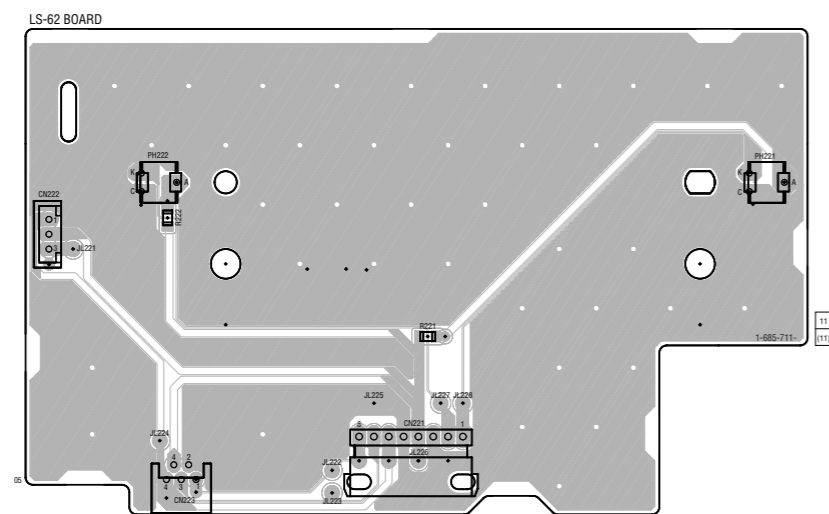
There are a few cases that the part isn't mounted in this model is printed on this diagram.



| | |
|-------|------|
| CN001 | F-15 |
| CN002 | D-20 |
| CN003 | E-1 |

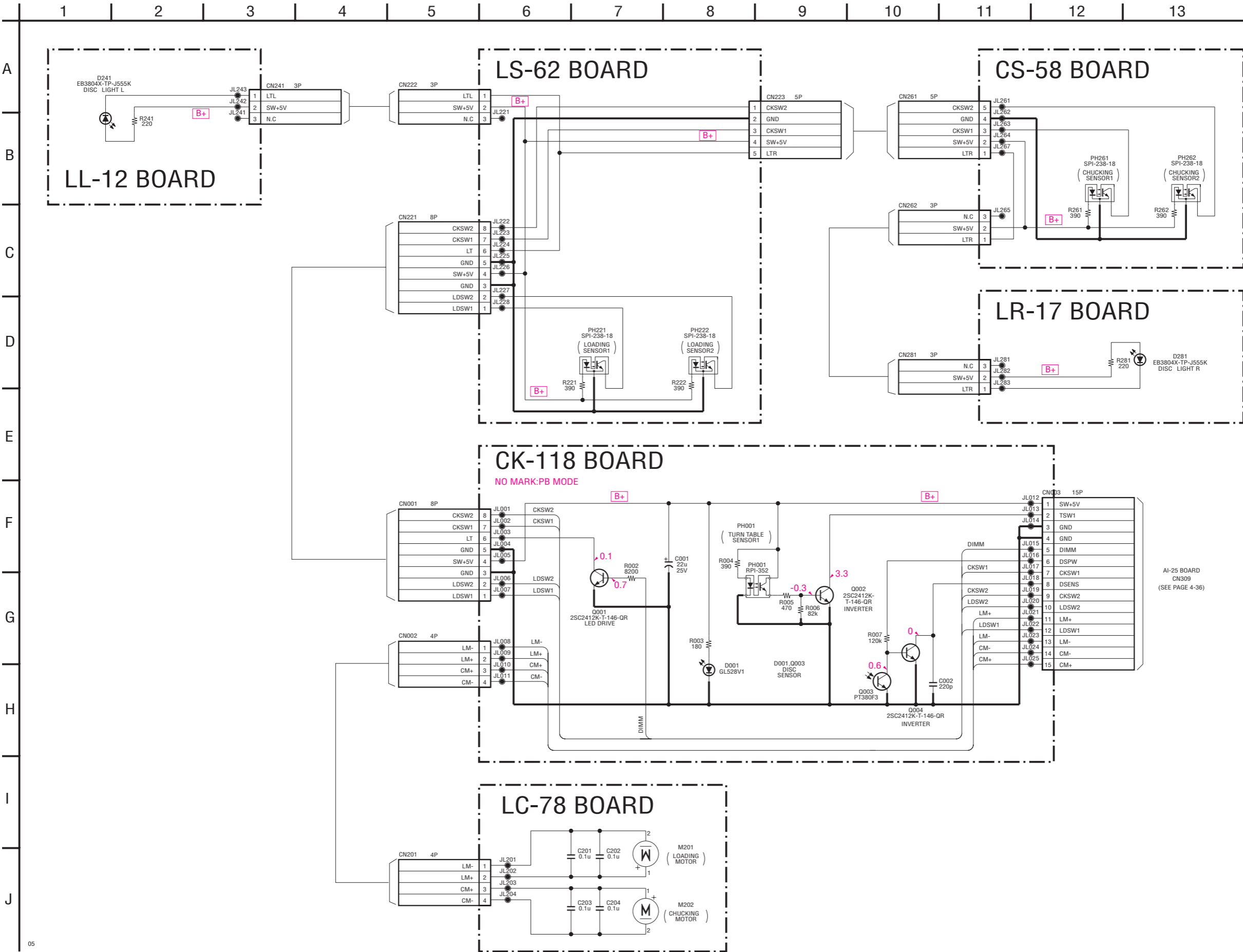
D001 D-10

| | |
|------|------|
| Q001 | E-14 |
| Q002 | D-4 |
| Q003 | D-2 |
| Q004 | C-2 |




CK-118 (DISC SENSOR), CS-58 (CHUCKING SENSOR), LC-78 (LOADING/CHUCKING MOTOR), LS-62 (LOADING SENSOR), LL-12 (LOADING GUIDE INDICATOR L), LR-17 (LOADING GUIDE INDICATOR R)
SCHEMATIC DIAGRAMS

– Ref. No.: CK-118 board, CS-58 board, LC-78 board, LS-62 board, LL-12 board, LR-17 board; 2,000 series –

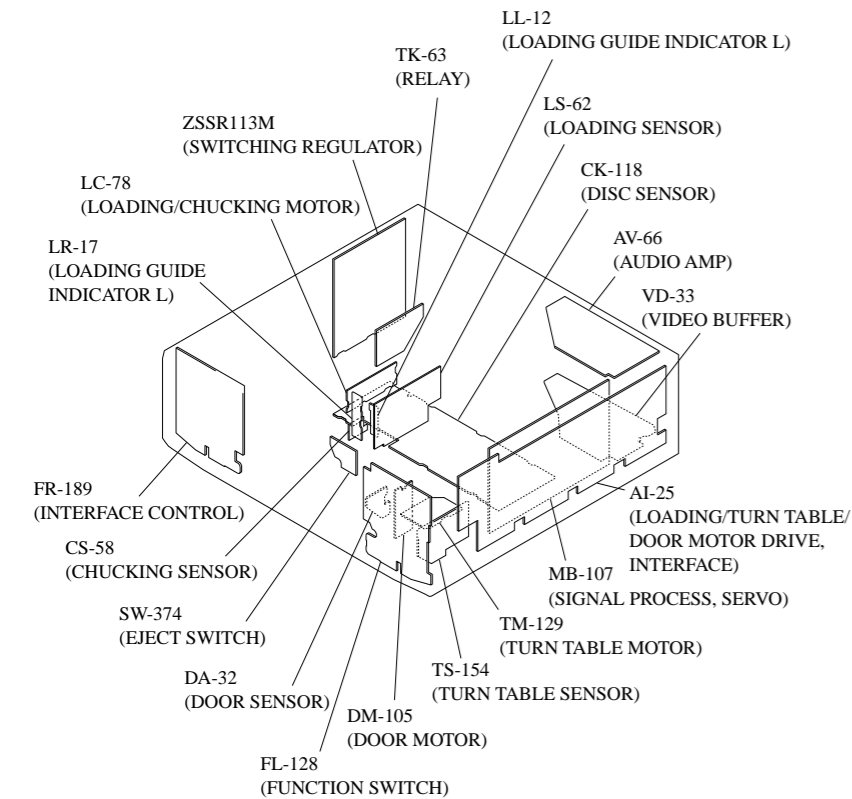
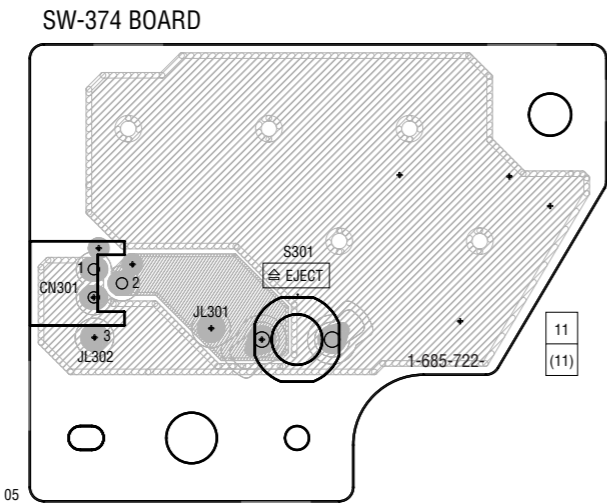


FL-128 (FUNCTION SWITCH), SW-374 (EJECT SWITCH) PRINTED WIRING BOARDS
– Ref. No.: FL-128 board, SW-374 board; 2,000 series –

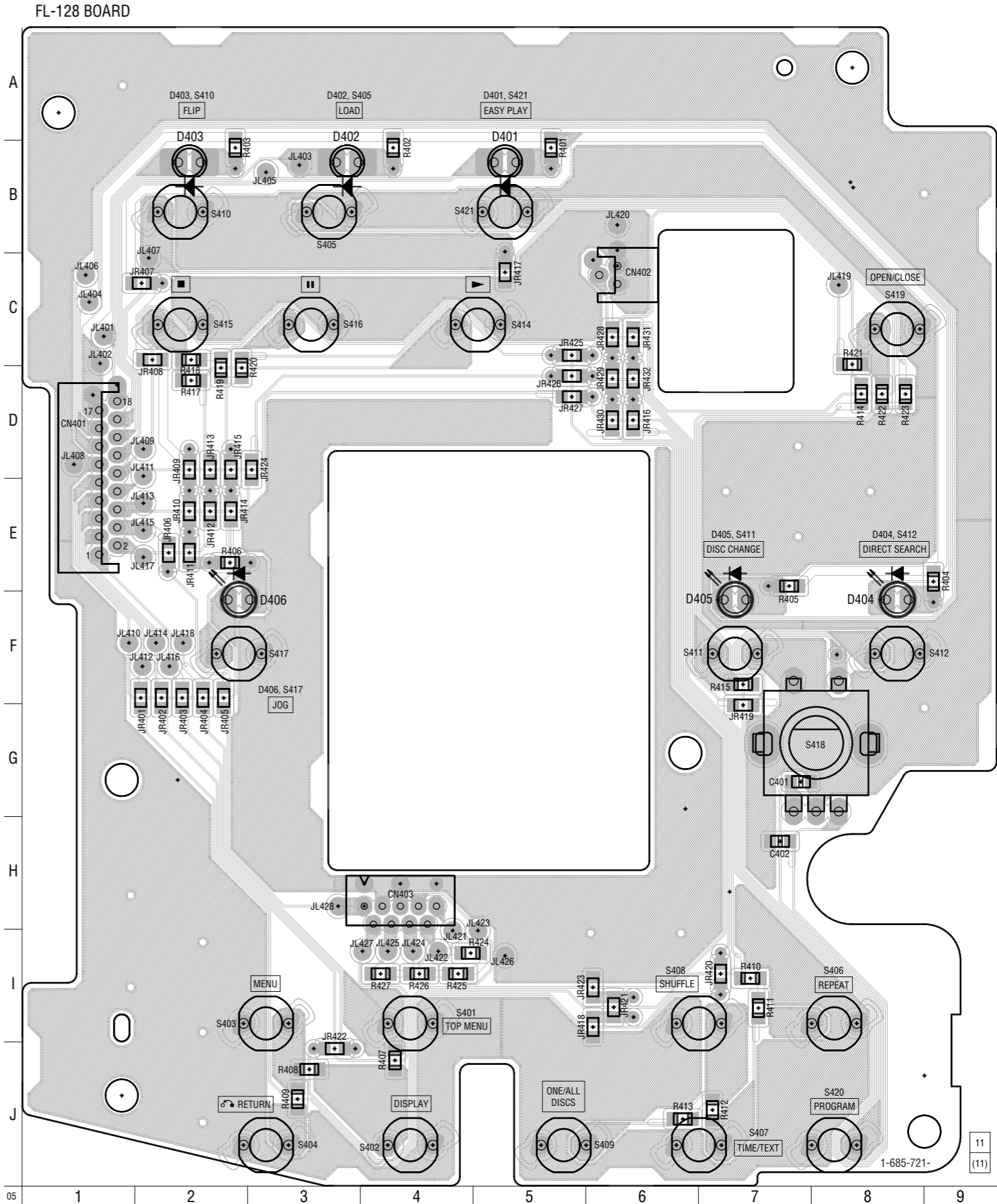
 : Uses unleaded solder.

FL-128 BOARD

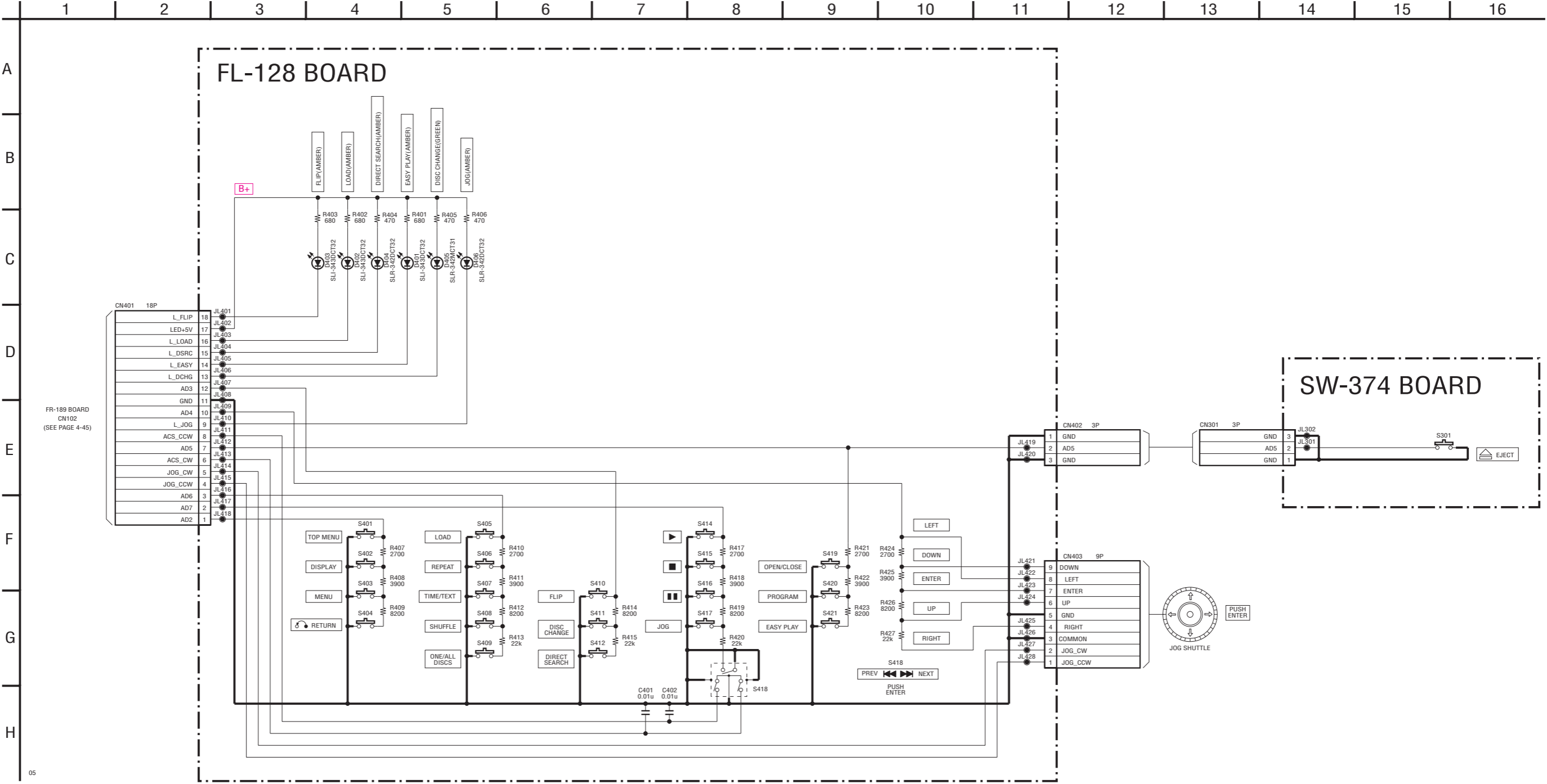
| | |
|-------|-----|
| CN401 | D-1 |
| CN402 | C-6 |
| CN403 | H-4 |
| D401 | B-5 |
| D402 | B-3 |
| D403 | B-2 |
| D404 | F-8 |
| D405 | F-7 |
| D406 | F-3 |



There are a few cases that the part isn't mounted in this model is printed on this diagram.




FL-128 (FUNCTION SWITCH), SW-374 (EJECT SWITCH) SCHEMATIC DIAGRAMS
– Ref. No.: FL-128 board, SW-374 board; 2,000 series –



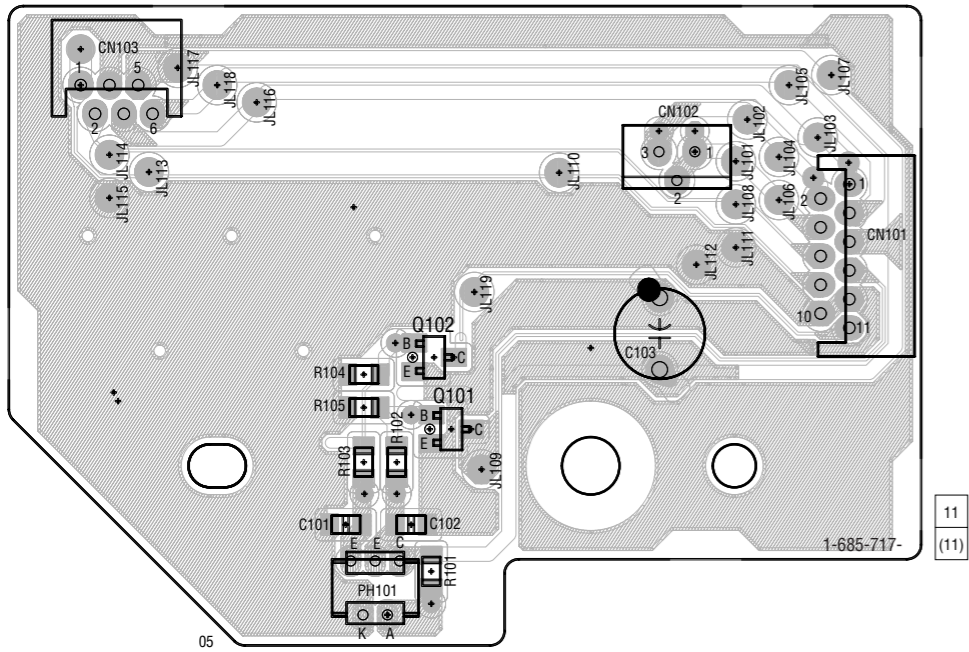
TS-154 (TURN TABLE SENSOR), TM-129 (TURN TABLE MOTOR), DA-32 (DOOR SENSOR), DM-105 (DOOR MOTOR) PRINTED WIRING BOARDS

– Ref. No.: TS-154 board, TM-129 board, DA-32 board, DM-105 board; 2,000 series –

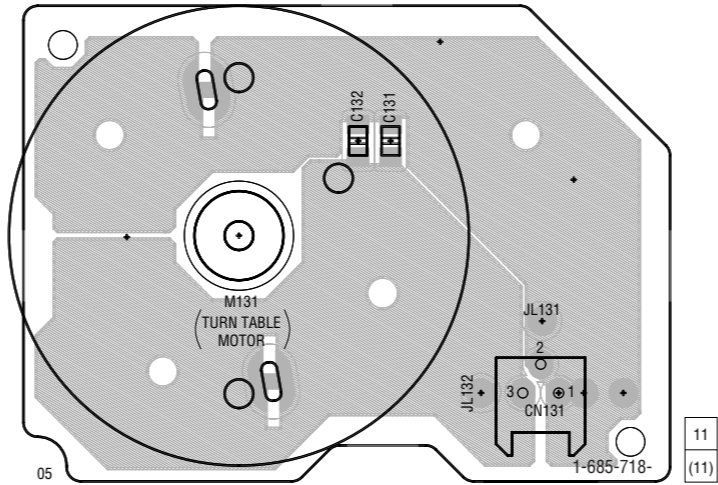
 : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.

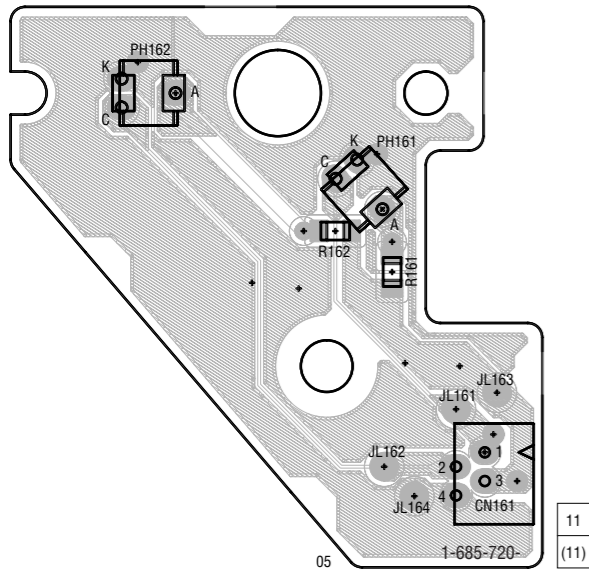
TS-154 BOARD



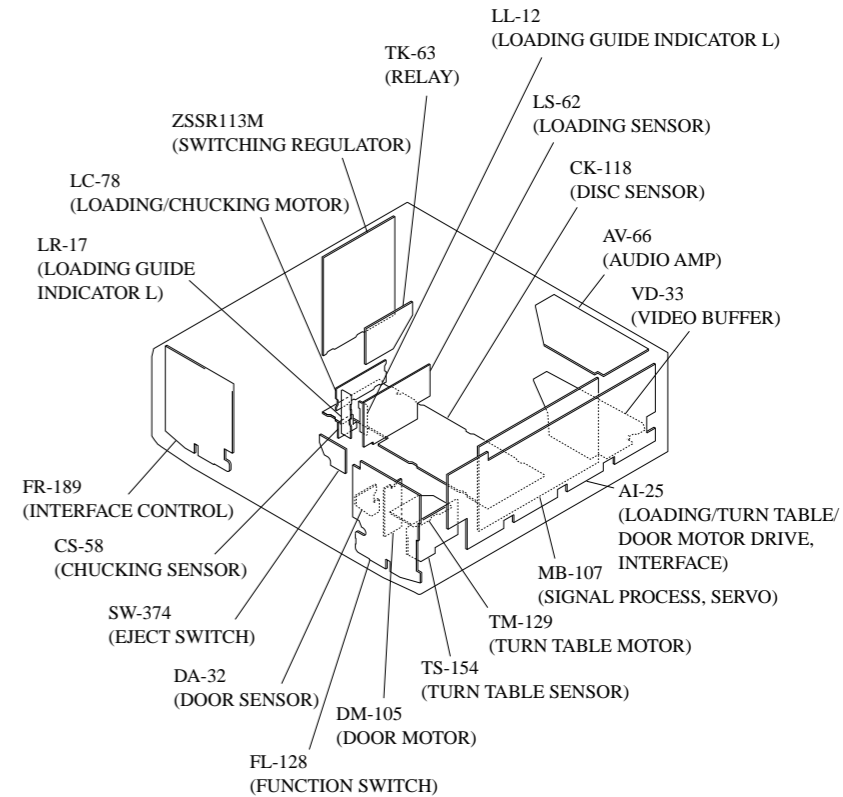
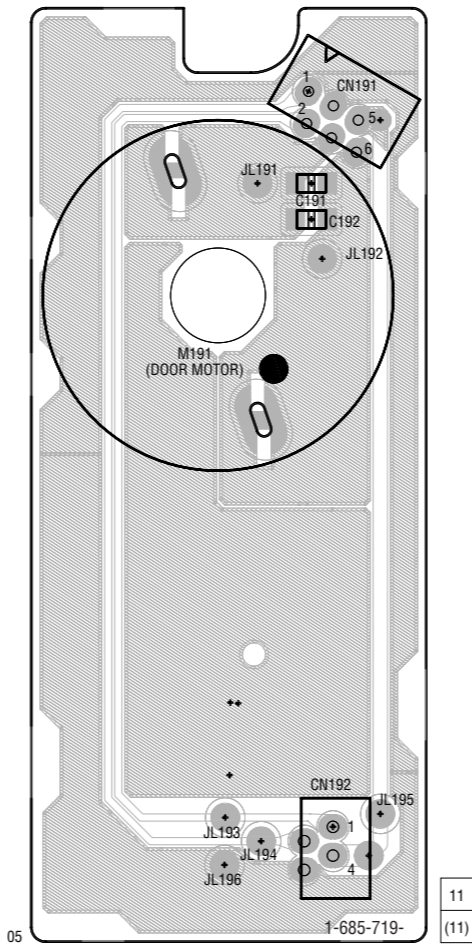
TM-129 BOARD




DA-32 BOARD



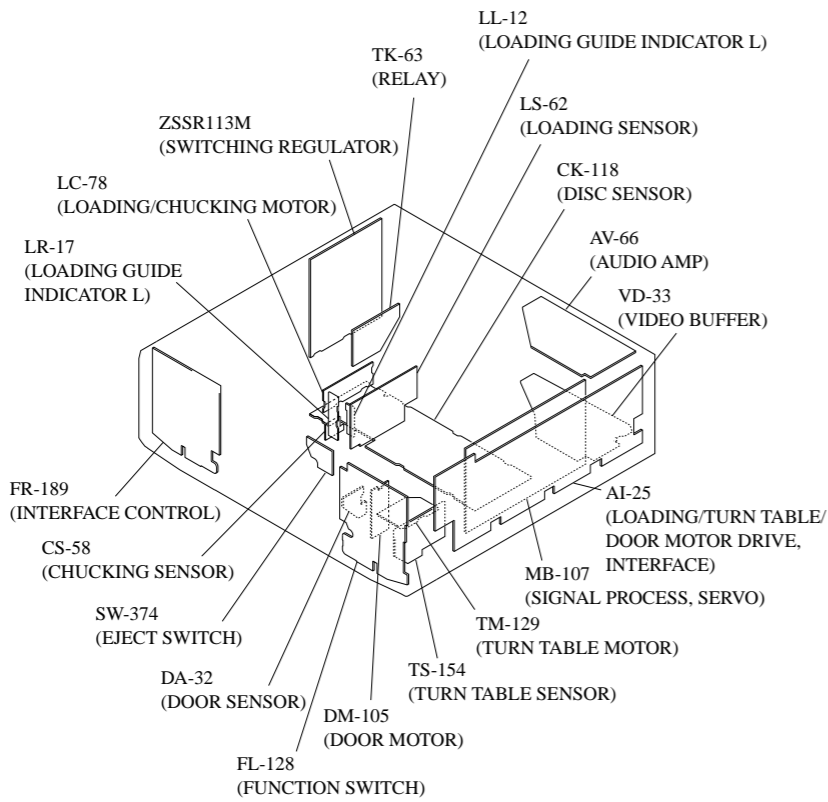
DM-105 BOARD



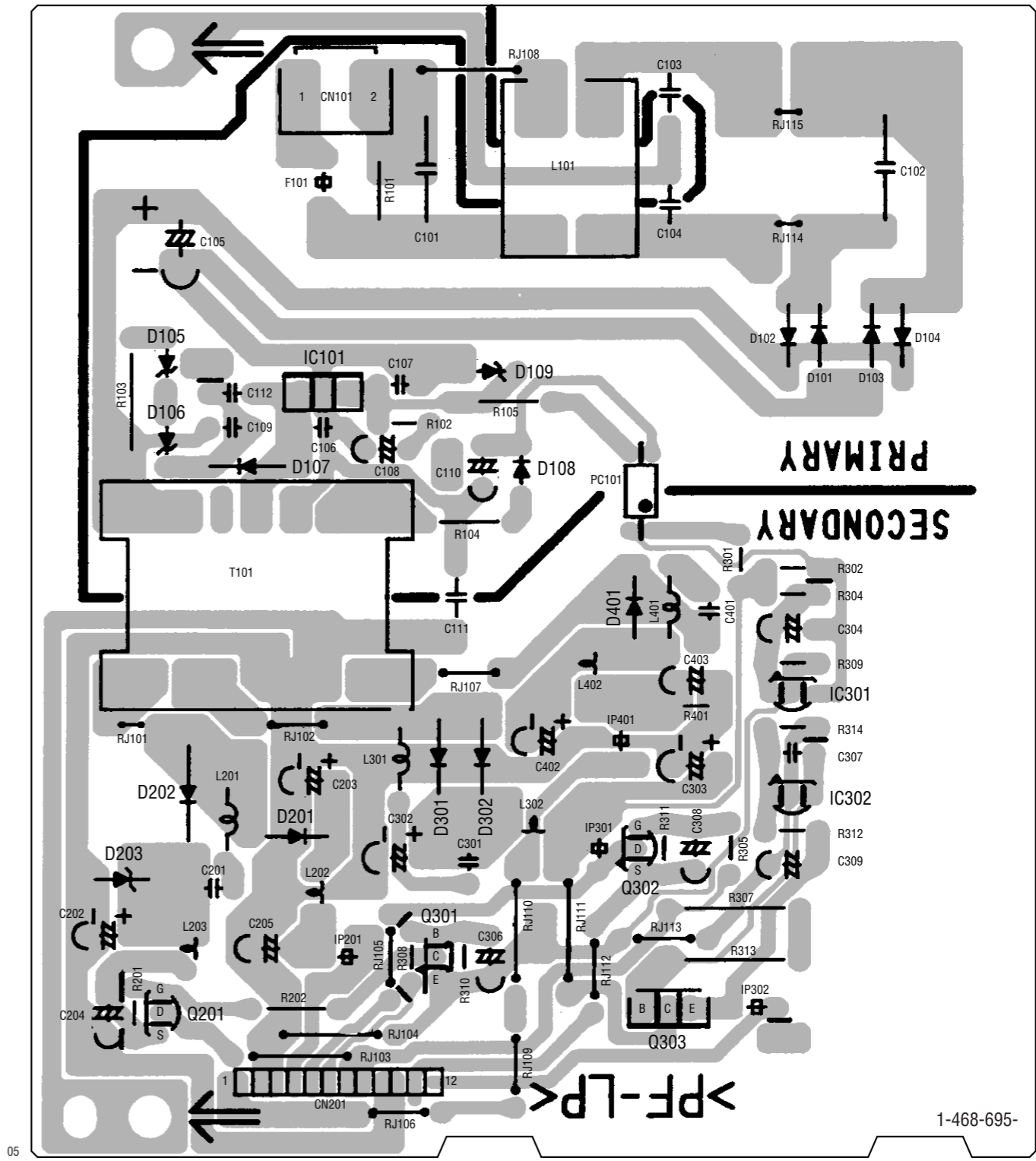
ZSSR113M (SWITCHING REGULATOR) PRINTED WIRING BOARD
– Ref. No.: ZSSR113M board; 1,000 series –

 : Uses unleaded solder.

There are a few cases that the part isn't mounted in this model is printed on this diagram.



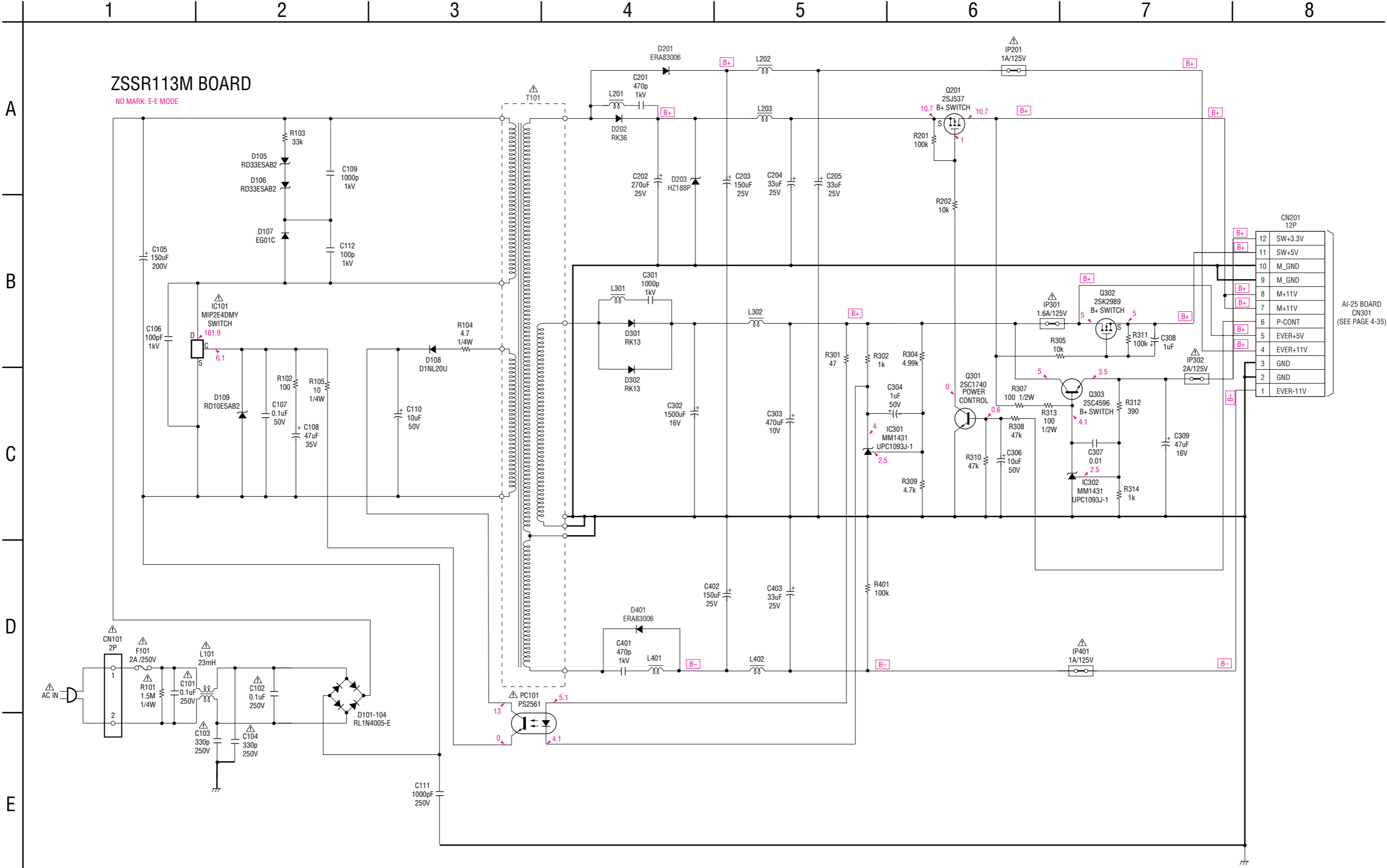
ZSSR113M BOARD



ZSSR113M (SWITCHING REGULATOR) SCHEMATIC DIAGRAM
– Ref. No.: ZSSR113M board; 1,000 series –

The components identified by mark \triangle or dotted line with mark \triangle are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque \triangle sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



SECTION 5

IC PIN FUNCTION DESCRIPTION

5-1. SYSTEM CONTROL PIN FUNCTION (MB-107 BOARD IC104)

| Pin No. | Pin name | I/O | Function |
|---------|-----------|-----|---|
| 1-5 | HA17-HA21 | O | Address bus A17-A21 |
| 6 | HA22 | - | Not used |
| 7 | WP | O | I2C EEPROM write protect output |
| 8 | XSACS | O | SACD DEC Chip select signal output (Not used in this set) |
| 9 | AVCC | - | Power supply (+3.3 V) |
| 10 | AVRH | - | Reference power supply (+3.3 V) |
| 11 | AVSS | - | Ground |
| 12 | AN0 | I | Set of mode 0 |
| 13 | AN1 | I | Set of mode 1 |
| 14 | AN2 | I | Set of mode 2 |
| 15 | AN3 | I | Set of mode 3 (SCAN SELECT switch input) |
| 16 | INT0 | I | AV DEC Interrupt input |
| 17 | INT1 | I | ARP Interrupt input |
| 18 | INT2 | I | SDSP Interrupt input |
| 19 | INT3 | I | NAND FLASH I/F, EXTENSION I/O Interrupt input |
| 20 | INT4 | I | IF CON Interrupt input |
| 21 | INT5 | I | ADSP Interrupt input |
| 22 | INT6 | I | ADSP Interrupt input |
| 23 | INT7 | I | SACD DEC Interrupt input (Not used in this set) |
| 24 | VCC | - | Power supply (+3.3 V) |
| 25 | SI0 | I | Serial bus 0 (data input) |
| 26 | SO0 | O | Serial bus 0 (data output) |
| 27 | SC0 | O | Serial bus 0 (clock output) |
| 28 | SI1 | I | Serial bus 1 (data input) (Not used in this set) |
| 29 | SO1 | O | Serial bus 1 (data output) |
| 30 | SC1 | O | Serial bus 1 (clock output) |
| 31 | SI2 | I | Serial bus 2 (data input) |
| 32 | SO2 | O | Serial bus 2 (data output) |
| 33 | DVD/SACD | O | DVD/SACD Select signal output (Not used in this set) |
| 34 | VSS | - | Ground |
| 35 | XRST | O | System reset signal output |
| 36 | WIDE | O | WIDE Select signal output |
| 37 | RGBSEL | O | VIDEO Select signal output (Not used in this set) |

| Pin No. | Pin name | I/O | Function |
|---------|-----------|-----|---|
| 38 | SDA | I/O | I2C data input/output |
| 39 | SCL | O | I2C clock output |
| 40 | XSARST | O | SACD DEC Reset signal output (Not used in this set) |
| 41 | EUROV/Y | O | VIDEO Select signal output (Not used in this set) |
| 42 | DSEL | O | Line input/output select signal output (Not used in this set) |
| 43 | MD0 | I | Input of mode select 0 (fixed at “H”) |
| 44 | MD1 | I | Input of mode select 1 (fixed at “L”) |
| 45 | MD2 | I | Input of mode select 2 (fixed at “L”) |
| 46 | DREQ0 | I | AV DEC DMA –REQ0 input |
| 47 | DACK0 | O | AV DEC DMA –ACK0 output |
| 48 | XDRV/MUTE | O | Drive mute signal output |
| 49 | DREQ1 | I | AV DEC DMA –REQ1 input |
| 50 | DACK1 | O | AV DEC DMA –ACK1 output |
| 51 | XIFCS | O | IF CON Chip select signal output |
| 52 | VSS | - | Ground |
| 53 | X1 | O | Clock output (16.5 MHz) |
| 54 | X2 | I | Clock input (16.5 MHz) |
| 55 | VCC | - | Power supply (+3.3 V) |
| 56 | CKSW1 | I | Chuck Sensor input (Not used in this set) |
| 57 | OCSW1 | I | Tray Sensor input (Not used in this set) |
| 58 | CS0X | O | External ROM chip select signal output |
| 59 | CS1X | O | Extranal RAM chip select signal output |
| 60 | CS2X | O | AV DEC Chip select signal output |
| 61 | CS3X | O | AV DEC Chip select signal output |
| 62 | CS4X | O | ARP Chip select signal output |
| 63 | CS5X | O | SDSP Chip select signal output |
| 64 | VCCI | - | Power supply (+1.8 V) |
| 65 | CS6X | O | NAND FLASH I/F, EXTENSION I/O Chip select signal output |
| 66 | CS7X | - | Not used |
| 67 | XWAIT | I | Wait signal input |
| 68 | BGRNTX | I | Test terminal (fixed at “H”) |
| 69 | BRQ | I | Test terminal (fixed at “L”) |

| Pin No. | Pin name | I/O | Function |
|---------|----------|-----|---|
| 70 | XRD | O | Read enable signal output |
| 71 | XWRH | O | High byte write enable signal output |
| 72 | XWRL | O | Lower byte write enable signal output |
| 73 | NMIX | I | Non Maskable Interrupt input (fixed at “H”) |
| 74 | VCCI | - | Power supply (+1.8 V) |
| 75 | VSS | - | Ground |
| 76 | XFRRST | I | IF CON Reset signal input |
| 77 | CPUCK | O | CPU clock signal output |
| 78 | SMUTE | O | SACD mute signal output (Not used in this set) |
| 79 | XDACS | O | DAC (2ch, 6ch) chip select signal output |
| 80 | X38CS | O | ADSP chip select signal output (Not used in this set) |
| 81 | 48/44.1K | O | PLL FS control signal output |
| 82 | XLDON | O | Laser diode mute signal output |
| 83 | MA_MUTE | O | Audio mute signal output |
| 84 | XSRWE | O | External RAM write enable signal output |
| 85-92 | HD0-HD7 | I/O | Data bus D0-D7 (16 bit only) |
| 93-100 | HD8-HD15 | I/O | Data bus D8-D15 (16 bit), D0-D7 (8 bit) |
| 101 | VSS | - | Ground |
| 102-109 | HA0-HA7 | O | Address bus A00-A07 |
| 110 | VCC | - | Power supply (+3.3 V) |
| 111-118 | HA8-HA15 | O | Address bus A08-A15 |
| 119 | VSS | - | Ground |
| 120 | HA16 | O | Address bus A16 |

SECTION 6 TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press the **[TOP MENU]**, **[CLEAR]**, **[POWER]** keys on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then "DIAG START" will be displayed on the fluorescent display tube and the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed. Last Off at the lower right of screen indicates the information code concerning the last power off.

To execute each function, select the desired menu and press its number on the remote commander.

To exit from the Test Mode, press the **[I/O]** key.

```

Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emergency Hisory
5. Version Information
6. Video Level Adjustment
                                Exit: Power Key
-
Model:DPX-16xxxx
Revision:x.xxx      Last Off: xx

```

Power Off Information Code List

- 00: Primary Power Off
- 01: Power Off Request from SYSTEM CONTROL
- 02: Power Off by Emergency Power Off Command from SYSTEM CONTROL
(if information is sent from SYSTEM CONTROL)
- 03: IF CON Judged that SYSTEM CONTROL is Faulty
- 04: Power Off from Diagnosis Mode of IF CON
- 05: Forced Power Off by the User
- 06: Power Off by Power Supply Voltage Monitor

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.

On the Test Mode Menu screen, press **[0]** key on the remote commander, and the following check menu will be displayed.

```

### Syscon Diagnosis ###
Check Menu
0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
-

```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All

All items continuous check

This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```

### Syscon Diagnosis ###

Diag All Check
No. 2 Version

2-3. ROM Check Sum
Check Sum = xxxx

Press NEXT Key to Continue
Press PREV Key to Repeat
-

```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.

Following the message, press **[▶▶]** key to go to the next item, or **[◀◀]** key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press **[■]** or **[ENTER]** key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```

### Syscon Diagnosis ###

3-3. EEPROM Check
Error 03: EEPROM Write/Read N
Address   : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
-

```

Press **[■]** key to quit the diagnosis, or **[◀◀]** key to repeat the same item where an error occurred, or **[▶▶]** key to continue the check from the item next to faulty item.

Submenu

Selecting 2 and subsequent items calls the submenu screen of each item.

Indication of “-” in the submenu means the check is not supported with the model.

For example, if “5. Supply” is selected, the following submenu will be displayed.

```
### Syscon Diagnosis ###
      Check Menu
      No. 5 Supply
0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
-
```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check.

This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.

Selecting 2 and subsequent items executes respective menus and outputs the results.

For the contents of each submenu, see “General Description of Checking Method” and “Check Items List”.

General Description of Checking Method

2. Version

(2-2) Revision

ROM revision number is displayed.

Error: Not detected.

The revision number defined in the source file of ROM (IC106 or 107) is displayed with four digits.

(2-3) ROM Check Sum

Check sum is calculated.

Error: Not detected.

8-bit data are added up to the ROM (IC106 or 107) address 0x000F0000 to 0x002EFFFF, and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type

Model code is displayed.

Error: Not detected.

The model code read from the EEPROM is displayed with 2-digit hexadecimal number.

(2-5) Region

Region code is displayed.

Error: Not detected.

The region code determined from the model code is displayed.

(2-6) M't check

Error 22: region code discord.

Accordance between region codes, one is detected with model resistance and destination resistance, and the other is detected with region resistance, is check.

If an error is detected, the region code determined with region resistance is displayed at “write data” and the region code determined with model resistance and destination resistance is displayed at “read data”.

3. Peripheral

(3-2) EEPROM Check

Data write → read, and accord check

Error 03: EEPROM write/read discord.

0x9249, 0x2942 and 0x4294 are written to the address 0x00 to 0xFF of the EEPROM and then read for checking. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-3) Gate Array Check

Data write → read, and accord check

Error 02: Gate Array write/read discord

Data of 0x00 to 0xFF is written sequentially to the address 0xF and then read for checking.

(3-4) NAND FLASH Check

Data delete → write → read, and accord check

Error 04: delete error

Error 05: write error

Error 06: read data discord

Error 21: more than ten blocks are defective

Deleting, writing and checking read data are executed to the zeroth block of Flash memory.

If any detective block is found, the address is displayed. When more than ten blocks are defective, it is considered as an error.

(3-5) ——— (not support)

(3-6) VENC Check

Data write → read, and accord check

Error 52: Write and read data discord.

Accessing to the SYSCON may be defective.

(3-7) ——— (not support)

(3-8) EX RAM Check

Test Data write → read, and accord check

Error 02: The external RAM used in the system control is checked.

4. Servo

(4-2) Servo DSP Check

Data write → read, and accord check

Error 12: Read data discord

0x9249, 0x2942 and 0x4294 are written to the RAM address 0x602 of the Servo DSP and then read for checking. Also, OPT type “1 LASER” or “2 LASER” is displayed.

(4-3) ——— (not support)

(4-4) RF Amp (SSI) W/R Check

Date write → read and accord check

Error 13: RF Amp resister write, and read data discord.

After 0x01 is shifted to register which can read and write RF Amp for 8 bit operation, if write and read data are discord once, the check is performed unsuccessfully.

There may be a single piece of hardware is defective, mounted imperfect or not mounted.

5. Supply

(5-2) ARP Register Check

Data write → read, and accord check

Error 08: ARP register write, and read data discord

Data 0x00 to 0xFF is written sequentially to the ARP TMAX register (address 0xC6) and then read for checking.

(5-3) ARP to RAM Data Bus

Data write → read, and accord check

Error 09: ARP ↔ RAM data bus error

Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC301) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus

Data write → other address read discord check

Error 10: ARP ↔ RAM address bus error

Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).

Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.

First, 0xA55A is written to the address 0x000000, and the address data are read and checked from addresses 0x000001 to 0x800000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x000001, and read and checked in the same manner. This check is repeated up to the address 0x800000 while shifting the address data by 1 bit each.

If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, for example,

```
### Syscon Diagnosis ###

5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address   : 0000A55A
Write Data: 00000000
Read Data : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat
—
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check

Data write → read, and accord check

Error 11: ARP RAM read data discord

The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP (IC301) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1935 RAM

Data write → read, and accord check

Error 14: AVD RAM read data discord

The program code data stored in ROM (IC106 or 107) are copied to all areas of RAM (IC404, IC405) connected to the AVD (IC403) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 14, and the test is suspended.

During the test, OSD display becomes blank as the OSD area is also checked.

(6-3) 1935 SP

ROM → AVD RAM → Video OUT

Error: Not detected.


The data including sub picture streams in ROM (IC106 or IC107) are transferred to the RAM (IC404, IC405) in AVD (IC403), and output as video signals from the AVD (IC403). Though OSD display becomes blank, the output of video signals continues until the key is pressed.

They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

7. Video

- (7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component).
- (7-3) Composite Out
AVD color bar command write → Video (Composite, Y/C) OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component).
- (7-4) Y/C Out
AVD color bar command write → Video (Composite, Y/C) OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component).
- (7-5) ——— (not support)
- (7-6) Component Out
AVD color bar command write → Video (Component, Y/C) OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component).
- (7-7) ——— (not support)

8. Audio

- (8-2) ARP → 1935
Error 15 : ARP → 1935 video NG
16 : ARP → 1935 audio NG
- (8-3) ——— (not support)
- (8-4) Test Tone
Pink noise output
Error: not detected
Test tone is output, from only L and R 2 channels of the model without DD output function, and from Ls and Rs of two channels of DD model.
After setting all outputs to ON, check for each channel is performed individually by pressing  to switch the output channel.

Check Items List

- 2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region
(2-6) M't Check
- 3) Peripheral
(3-2) EEPROM Check
(3-3) Gate Array Check
(3-4) NAND FLASH Check
(3-5) ——— (function not support)
(3-6) VENC Check
(3-7) ——— (function not support)
(3-8) EX RAM check
- 4) Servo
(4-2) Servo DSP Check
(4-3) ——— (function not support)
(4-4) RF Amp (SSI) W/R Check
- 5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check
- 6) AV Decoder
(6-2) 1935 RAM
(6-3) 1935 SP
- 7) Video
(7-2) Color Bar
(7-3) Composite Out
(7-4) Y/C Out
(7-5) ——— (function not support)
(7-6) Component Out
(7-7) ——— (function not support)
- 8) Audio
(8-2) ARP → 1935
(8-3) ——— (function not support)
(8-4) Test Tone

Error Codes List

00: Error not detected
01: RAM write/read data discord
02: Gate Array NG
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
07: 2725 read data discord
08: ARP register read data discord
09: ARP \longleftrightarrow RAM data bus error
10: ARP \longleftrightarrow RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: RF Amp NG
14: SDRAM NG
15: ARP \rightarrow 1935 video NG
16: ARP \rightarrow 1935 audio NG
19: 1901UCODE Download NG
1A: System call error (function not supported)
1B: System call error (parameter error)
1C: System call error (illegal ID number)
20: System call error (time out)
21: more than ten blocks of NAND FLASH memory are detected.
22: Resistance incorrect mounting
52: Video Encoder W/R NG
55: External RAM W/R NG
90: Error occurred
91: User verification NG
92: Diagnosis cancelled

6-4. DRIVE AUTO ADJUSTMENT

DVD reference disc

Single Layer

HLX-503 (J-6090-069-A) (NTSC) OR

HLX-504 (J-6090-088-A) (NTSC)

Dual Layer

HLX-501 (J-6090-071-A) (NTSC) OR

HLX-505 (J-6090-089-A) (NTSC)

TEST CD

YEDS-18 (3-702-101-01)

On the Test Mode Menu screen, press **[1]** key on the remote commander, and the drive auto adjustment menu will be displayed.

Drive Auto Adjustment

Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. LCD

Exit: RETURN

Normally, **[0]** is selected to adjust DVD (single layer), CD, DVD (dual layer) in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen. Which disc is currently adjusted is displayed on the fluorescent display tube.

The disc used for adjustment must be the one specified for adjustment.

0. ALL

You will be asked if EEPROM data are initialized or not, and for this prompt, select **[0]** and press the **[ENTER]** key. First, the servo setting data in EEPROM, Emergency History and Hour Meter are cleared to initialize. Then, 1. DVD-SL disc, 2. CD disc, and 3. DVD-DL disc are adjusted in this order. You can exit the adjustment by pressing the **[■]** button. In adjusting each disc, the mirror time is measured to check the disk type. In the auto adjustment, whether the disc type is correct is not checked unlike conventional models, and accordingly, take care not to insert a different type of disc.

Three kinds of discs can be set in advance. In this case, set discs in order to the displayed number with following the message. Every time after adjusting a disc, the disc is replaced and adjustment is continued automatically.

Set Disc

Disc slot number 1: DVD-SL

Disc slot number 2: CD

Disc slot number 3: DVD-DL

1. DVD-SL (single layer)

Select **[1]**, insert DVD single layer disc, and press **[ENTER]** key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory SL
3. Set Disc Type SL
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Focus ON 0 with PI Level Measure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto Focus Balance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. EQ Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. RF Level Measure
21. Jitter Measure
22. Eep Copy Loop Filter Offset
23. All Servo Stop

2. CD

Select [2], insert CD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Reset
2. Disc Check Memory CD
3. Set Disc Type CD
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Fcs ON 0 with PI Level Measure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto focus Balance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. Eq Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. Copy Adjustment Data to LCD
21. RF Level Measure
22. Jitter Measure
23. All Servo Stop

3. DVD-DL (dual layer)

Select [3], insert DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory DL
3. Set Disc Type DL
DVD DL Layer 1 Adjust
4. Spdl Start
5. LD ON
6. Fcs ON 1 with PI Level Measure
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Clva ON
10. Sled ON
11. Auto Focus Balance Adjust
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
14. Eq Boost Adjust L1
15. Auto Track Gain Adjust L1
16. Jitter Measure
DVD DL Layer 0 Adjust
17. Focus Jump (L1 → L0)
18. Auto Track Offset Adjust L0
19. Tracking ON
20. Clva ON
21. Sled ON
22. Auto Focus Balance Adjust
23. Auto Focus Gain Adjust L0
24. Auto Focus Balance Adjust L0
25. Eq Boost Adjust L0
26. Auto Track Gain Adjust L0
27. Jitter Measure
28. All Servo Stop

4. LCD (SACD)

No adjustments, because the adjusted data of CD are reflected to LCD disc and the adjusted data of CD and DVD-DL are reflected to SACD (hybrid disc).

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```

## Drive Manual Operation ##
      Operation Menu
1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check
7. 300 CHG MechaControl 1
8. 300 CHG MechaControl 2
0. Disc Check Memory

Exit: RETURN

```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
The disc type must be set after a disc was loaded.
The set disc type is cleared when the door is opened.
2. After power ON, if the Drive Manual Operation was selected, first perform "Reset SLED TILT" by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the [■] button to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

| | |
|-----------------|--|
| [I/O] | Power OFF |
| [■] | Servo stop |
| [RETURN] | Return to Operation Menu or Test Mode Menu |
| [▶▶], [◀◀] | Transition between sub modes of menu |
| [1] to [9], [0] | Selection of menu items |
| Cursor [↓]/[↑] | Increase/Decrease in manually adjusted value |

★ Disc Loading or Eject is needed when operations, select "7. 300 chg Mecha Control 1" (SEE 6-11).

0. Disc Check Memory

```

Disc Check

1. SL Disc Check
2. CD Disc Check
3. DL Disc Check

0. Reset SLED TILT

```

On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press [1], then set a CD disc and press [2], and finally set a DVD DL disc and press [3]. The measured mirror time is displayed respectively.

The adjustment must be executed more than once after default data were written.

From this screen, you can go to another mode by pressing [▶▶] or [◀◀] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```

Disc Type

1. Disc Type Auto Check
2. DVD SL 12cm
3. DVD DL 12cm
4. CD 12cm
5. LCD 12cm
6. DVD SL 8cm
7. DVD DL 8cm
8. CD 8cm
9. LCD 8cm
0. Reset SLED TILT

EMG. 00
0. Reset SLED TILT

```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting [1] automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the door causes the set disc type to be cleared. In this case, set the disc type again after loading.

In performing manual operation, the disc type must be set.

Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```

Disc Type

1. Disc Type Auto Check
2. DVD SL 12cm
3. DVD DL 12cm
4. CD 12cm
5. LCD 12cm
6. DVD SL 8cm
7. DVD DL 8cm
8. CD 8cm
9. LCD 8cm
0. Reset SLED TILT

SA.----- SI.-- EMG.00
DVD SL 12cm

```

Display when DVD SL 12cm disc was selected

| Disc Type | |
|-------------------------|------------------------|
| 1. Disc Type Auto Check | |
| 2. DVD SL | 12cm |
| 3. DVD DL | 12cm |
| 4. CD | 12cm |
| 5. LCD | 12cm |
| 6. DVD SL | 8cm |
| 7. DVD DL | 8cm |
| 8. CD | 8cm |
| 9. LCD | 8cm |
| 0. Reset SLED TILT | |
| — | TC. ---:---:--- EMG.00 |
| CD | 12cm |

Display when CD 12cm disc was selected

- [0] Reset SLED TILT Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)
- [1] Disc Type Auto Check Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct.
If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
- [2] to [9] Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] was selected.

2. Servo Control

| Servo Control | |
|--------------------|------------------------|
| 1. LD | Off R. Sled FWD |
| 2. SP | Off L. Sled REV |
| 3. Focus | Off |
| 4. TRK. | Off |
| 5. Sled | Off |
| 6. CLVA | Off |
| 7. FCS. Srch | Off |
| | |
| 0. Reset SLED TILT | |
| | SA.----- SI.-- EMG. 00 |
| DVD SL 12 cm | |

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked. The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

- [0] Reset SLED TILT Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)
- [1] LD Turn ON/OFF the laser.
- [2] SP Turn ON/OFF the spindle.

- [3] Focus Search the focus and turn on the focus.
- [4] TRK Turn ON/OFF the tracking servo.
- [5] Sled Turn ON/OFF the sled servo.
If PLL is not locked (or can not be locked), the sled servo does not be turned ON. (Indication remains as OFF)
- [6] CLVA Turn ON/OFF normal servo of spindle servo.
- [7] FCS. Srch Apply same voltage as that of focus search to the focus drive to check the focus drive system.
- Sled FWD Move the sled outward. Perform this operation with the tracking servo turned off.
- ← Sled REV Move the sled inward. Perform this operation with the tracking servo turned off.

3. Track/Layer Jump

| Track/Layer Jump | |
|------------------|------------------------|
| 1. 1Tj FWD | R.Fj(L1 -> L0) |
| 2. 1Tj REV | L.Fj(L0 -> L1) |
| 3. 2Tj FWD | U.Lj(L1 -> L0) |
| 4. 2Tj REV | D.Lj(L0 -> L1) |
| 5. NTj FWD | |
| 6. NTj REV | |
| 7. 500Tj FWD | |
| 8. 500Tj REV | |
| 9. 10k/20k FWD | |
| 0. 10k/20k REV | |
| | SA.----- SI.-- EMG. 00 |
| DVD DL 12 cm | |

On this screen, track jump, etc. can be performed. Only for the DVD-DL, the focus jump and layer jump are displayed in the right field.

- [1] 1Tj FWD 1-track jump forward.
- [2] 1Tj REV 1-track jump reverse.
- [3] 2Tj FWD 2-track jump forward.
- [4] 2Tj REV 2-track jump reverse.
- [5] NTj FWD N-track jump forward.
- [6] NTj REV N-track jump reverse.
- [7] 500Tj FWD Fine search forward.
- [8] 500Tj REV Fine search reverse.
- [9] 10k/20k FWD Direct search forward.
- [0] 10k/20k REV Direct search reverse.

– The following commands are valid for DVD-DL disc only –

- Fj (L1 → L0) Focus jump forward.
(Trk/Sled Servo OFF)

- ← Fj (L0 → L1) Focus jump reverse.
(Trk/Sled Servo OFF)
- ↑ Lj (L1 → L0) Layer jump forward.
(Trk/Sled Servo ON)
- ↓ Lj (L0 → L1) Layer jump reverse.
(Trk/Sled Servo ON)

4. Manual Adjustment

```

Manual Adjustment:Up/Down
1. TRK. Offset
2. Focus Gain
3. TRK. Gain
4. Focus Offset
5. Focus Balance
6. L.F. Offset
7. Analog FRSW
8. PLL Dac Gain
9. EQ BOOST
0. GD ADJ

SA. ----- SI. -- EMG. 00
DVD SL 12cm Jitter FF

```

On this screen, each item can be adjusted manually. Select the desired number [1] to [0] from the remote commander, and current setting for the selected item will be displayed, then increase or decrease numeric value with [↑] key or [↓] key. This value is stored in the EEPROM. If CLV has been applied, the jitter is displayed for reference for the adjustment.

- [1] TRK. Offset Adjusts tracking offset.
- [2] Focus Gain Adjusts focus gain.
- [3] TRK. Gain Adjusts track gain.
- [4] Focus Offset Adjusts focus offset.
- [5] Focus Balance Adjusts focus balance.
- [6] L.F. Offset Adjusts loop filter offset.
- [7] Analog FRSW Sets the shifting switch for analog feedback circuit.
- [8] PLL Dac Gain Adjusts PLL D/A converter gain.
- [9] EQ BOOST Adjusts amount of boost of equalizer.
- [0] GD ADJ Adjusts amount of group delay

5. Auto Adjustment

```

Auto Adjustment
1. Auto TRK. Offset
2. Auto FCS Balance
3. Auto Focus Offset
4. Auto Focus Gain
5. Auto TRK. Gain
6. Auto EQ.
7. Auto L.F. Offset
8. Auto Group Delay

SA. ----- SI. -- EMG. 00
DVD SL 12 cm

```

On this screen, each item can be adjusted automatically. Select the desired number [1] to [8] from the remote commander, and selected item is adjusted automatically.

- [1] Auto TRK. Offset Adjusts tracking offset.
- [2] Auto Focus Balance Adjusts focus balance.
- [3] Auto Focus Offset Adjusts focus offset.
- [4] Auto Focus Gain Adjusts focus gain.
- [5] Auto TRK. Gain Adjusts track gain.
- [6] Auto EQ
- [7] Auto L.F. Offset Adjusts loop filter offset.
- [8] Auto Group Delay

6. Memory Check

Display images are shown as follows, and all three screens are able to switch.

```

EEPROM Data 1      -- DL --
                   CD LCD  SL  L0  L1
Focus Gain         xx xx  xx xx xx
TRK. Gain          xx xx  xx xx xx
FCS Balance        xx xx  xx xx xx
Focus Bias         xx xx  xx xx xx
TRV. Offset        xx xx  xx xx xx
L.F. Offset        xx xx  xx xx xx
EQ. Boost          xx xx  xx xx xx

UP      : Last Data
DOWN    : Next Data
CLEAR   : Default   Setpage.1/3

```

```

EEPROM Data 2      -- DL --
                   CD LCD  SL  L0  L1
RF Jitter          xx --  xx xx xx
RF Level           xx --  xx -- --
FE Level           xx --  xx -- --
FE Balance         xx --  xx -- --
TRV.Level          xx --  xx -- --
TE Gain           xx xx  -- -- --
PI Level           xx --  xx xx --

UP      : Prev Data
DOWN    : Next Data
CLEAR   : Default   Setpage.2/3

```

```

EEPROM Data 3      -- DL --
                  CD LCD  SL  L0  L1
Analog FRSW   xx  xx   xx  xx  xx
PLL Dac Gain  xx  xx   xx  xx  xx
Mirror Time   xx  xx   xx  xx  xx

      THR A&L:  xx  xx   xx/xx  xx  xx

_ UP      : Prev Data
DOWN     : First Data
CLEAR    : Default      Setpage.3/3

```

On this screen, current servo adjusted data stored in the EEPROM are displayed. The adjusted data are initialized by pressing the **[CLEAR]** key, but be careful that they are not recoverable after initialization.

Before clearing the adjusted data, make a note of the set data. This screen will also appear if **[0]** All is selected in the Drive Auto Adjustment. In this case, default setting cannot be made. Data of "THR A & L" on page 3/3 can not be changed if default set is done.

7. 300 CHG MechaCon Menu 1

On this test mode screen, selecting **[7]** enables the adjustment from the front control panel such as disc loading. The following screen appears.

Display when **[7]** is selected in the Drive Manual Operation

```

## 300 CHG MechaCon Menu 1 ##
ENTER  : Mecha Initial
PLAY   : Disc Load (Front)
STOP   : Disc UnLoad (Front)
OP/CL  : Door Open/Close
UP     : Unchuck (Front)
DOWN   : Chuck
RIGHT  : Loading (Front)
LEFT   : UnLoading (Front)
jog FOR: Table R Step Turn
jog PRV: Table L Step Turn
-
RETURN : Exit

```

[ENTER] : Performs initialization of mechanism.
Mecha Initial Because the mechanical initialization is performed when the machine enters the Drive Manual Operation mode, use this item when an error such as adjustment error occurs.

[PLAY] : Loads the disc from the chucking position of the T. table toward inside the MD.
Disc Load (Front) When the Disc Load is selected, a series of operation starting from Unchucking – Loading – Chucking is performed.

[STOP] : Moves the disc from inside the MD to the T. table.
Disc Unload (Front) When the Disc Unload is selected, a series of operation starting from Unchucking – Unloading – Chucking is performed.

[OP/CL] : Opens and closes the door.
Door Open/Close

[UP] : Un-chucks the MD block.
Un-chuck

[DOWN] : Chucks the MD block.
Chuck

[RIGHT] : Moves the disc from the un-chucked state to the T. table then to the MD block.
Loading (Front)

[LEFT] : Moves the disc from the un-chucked state to the MD block then to the T. table.
Unloading (Front)

[jog FOR] : Moves the T. table to the right in units of the slit.
Table R step Turn The T. table number is incremented in the direction of positive (+) number.

[jog PRV] : Moves the T. table to the left in units of the slit.
Table L step Turn The T. table number is decremented in the direction of negative (–) number.

[RETURN] : Returns to the Operation Menu.
Exit

8. 300 CHG MechaCon Menu 2

On this test mode screen, selecting **[8]** enables the adjustment from the rear panel such as disc loading. The following screen appears.

Display when **[8]** is selected in the Drive Manual Operation

```

## 300 CHG MechaCon Menu 2 ##
ENTER  : Mecha Initial
PLAY   : Disc Load (Rear)
STOP   : Disc UnLoad (Rear)
OP/CL  : Door Open/Close
UP     : UnChuck (Rear)
DOWN   : Chuck
RIGHT  : Loading (Rear)
LEFT   : UnLoading (Rear)
DISP   : Mecha Adjust
PAUSE  : TT Offset Debug
-
RETURN : Exit

```

Insertion and rejection of discs are performed from the rear panel. All operations are the same as those of the 300 CHG MechaCon Menu 1 except **[DISP]** and **[PAUSE]**.

[DISP] : When this item is selected, the machine enters the adjustment mode of the disc existence/non-existence sensor. The following screen appears.
Mecha Adjust

[PAUSE] : When this item is selected, load to the T. table is measured by changing the value of the PWM control to the motor. Never attempt to enter this mode. When this mode is selected, the machine needs to perform the Mecha Initial.
TT Offset Debug

Display when the Mecha Adjust is selected in the 300 CHG Mecha Con Menu 2

```

## Mecha Adjust Mode ##

RIGHT : Disc Sensor Adjust
LEFT  : TurnTable Adjust

TurnTable Data : xx
Sensor sensiv  : xx
Sensor Posi RP : xx
Sensor Posi RM : xx
Sensor Posi LP : xx
Sensor Posi LM : xx _

RETURN : Exit

```

Turn Table Data : Indicates the center position of the slit. (Width of one slit = 24 pulses). The default value is 12.

Sensor Sensiv : Indicates sensitivity of the disc sensor. The normal value is ranging form 0 to 15.

Sensor Posi RP : These are not the important values.

Sensor Posi RM
Sensor Posi LP
Sensor Posi LM : They indicate the position of the disc sensor when the disc sensor monitors the disc when rotating the T. table. Rx indicates the value when the T. table is rotated clockwise and Lx indicates the value when the T. table is rotated counterclockwise.

RIGHT : Enters the sensitivity adjustment mode of the disc sensor.

LEFT : Adjusts finely the center position of the slit in units of plus using the jog dial.

Display when Disc Sensor Adjust is selected in the 300 CHG Mecha Con Menu 2

```

## Sensor Adjust Mode ##

DOWN : Sensitivity Adjust
RIGHT : Position Adjust R
LEFT  : Position Adjust L

RETURN : Exit

```

Before this operation, perform Turn Table Adjust (SEE 6-12) or Mecha Initial (SEE 6-11).

You must perform 3 operations for Sensor Adjustment.

DOWN → **RIGHT** → **LEFT**
↘ or **LEFT** → **RIGHT**

DOWN : Performs the sensitivity adjustment of the disc sensor by turning T. table for a full rotation.

RIGHT : Determines the detection position of the T. table by counting the number of slit's tooth of the T. table when the T. table is turned clockwise by a full rotation.

LEFT : Determines the detection position of the T. table by counting the number of slit's tooth of the T. table when the T. table is turned counterclockwise by a full rotation.

Display when Turn Table Adjust Mode is selected in Mecha Adjust Mode.

```

## Turn Table Adjust Mode ##

JOGFWD : Right 1 Step
JOGPRV : Left 1 Step
DMSFWD : Right 2 Step
DMSPRV : Left 2 Step
ENTER   : ENTER -> Exit

STEP : 12

RETURN : Exit

```

Performs the fine adjustment of the slit position of the T. table using the Jog dial and the DMS (disc selection dial).

★ After this operation, perform Disc Sensor Adjust (SEE 6-12).

JOGFWD : Moves the T. table to the right by one pulse. STEP +

JOGPRV : Moves the T. table to the left by one pulse. STEP -

DMSFWD : Moves the T. table to the right by two pulses. STEP ++

DMSPRV : Moves the T. table to the left by two pulses. STEP --

ENTER : Determines the adjustment values and the set value.

STEP : When the T. table is adjusted using the above commands, the adjustment position during each adjustment item is displayed. The initial value is set to 12.

Display when **PAUSE** is selected in the 300 CHG MechaCon Menu 2

```

## Turn Table Offset Debug ##

No | On | off
1  | xx | xx
2  | xx | xx
3  | xx | xx
4  | xx | xx
5  | xx | xx
PLAY : Slow Turn (No.5)
STOP  : Turn Stop
PAUSE : Change PWM
_     :
RETURN : Exit

```

PLAY : Moves the T. table slowly.

STOP : Stops movement of the T. table.

PAUSE : Sets the PWM value in the order starting from NO → On → Off.

This mode is prepared for measurement of the load to the T. table as described before. Result of the measurement is not reflected on adjustment.
After this mode is selected, Mecha Initial must be performed.

6-6. MECHA AGING

When [3] is selected on this test mode screen, the machine enters the mechanical aging mode. The following screen appears. Do not use this mode.

```

### Mecha Aging ###

1. Please Select Aging Mode
2. All Mecha : Random Aging Move
3. All Mecha : +1 Move
4. All Mecha : -1 Move
5. All Mecha : 1 Disc Front
6. All Mecha : 1 Disc Rear
7. TurnTable : Random Move
8. TurnTable : Half Move
9. Door Open/Close

Exit: RETURN

```

6-7. EMERGENCY HISTORY

```

### EMG. History ###

Laser Hours      CD   xxh xxm
                  DVD   xxh xxm

1. 00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00

2. 00 00 00 00 00 00 00 00
   00 00 00 00 00 00 00 00

-
Select: 1-9      Scroll: UP/DOWN
(1:Last EMG.)   Exit: RETURN

```

On the Test Mode Menu screen, selecting [4] displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with [↑] key or [↓] key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

- ① Clearing laser hours
Press [DISPLAY] and [CLEAR] keys in this order.
Both CD and DVD data are cleared.
- ② Clearing emergency history
Press [TOP MENU] and [CLEAR] keys in this order.
- ③ Initializing set up data
Press [MENU] and [CLEAR] keys in this order.
The data have been initialized when "Set Up Initialized" message is displayed. The EMG. History screen will be restored soon.

6-8. VERSION INFORMATION

```

## Version Information ##

IF con.          Ver:x.xxx(XXXX)
                Group   xx

SYScon.          Ver:x.xxx(XXXX)
                Model   xx
                Region  0x

Servo DSP Ver: x.xxx
AVD ucode Ver: xxxxxxxx
OPT TYPE : x LASER
Exit: RETURN

```

The ROM version, region code, OPT type, etc. are displayed if [5] is selected in the Test Mode Menu.

The parenthesized hexadecimal number in the version number field indicates the checksum value of the ROM.

Note : After down loading ROM data, sometimes it happens that checksum is not the same as that of ROM data which has been down loaded. In such a case, go back to the menu and select "0. Syscon Diagnosis", then select "1. All" in "2. Version". If the result of this operation does not give an agreement, it must be either Down Load error or ROM error.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting [6] displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. FR-189 BOARD (IF CON) TEST MODE

The front board test mode is the IF CON self diagnostic mode. The IF CON can diagnose the functions of the front panel boards that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the Test mode, the following functions can be checked.

1. Button function
2. Remote commander receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Click shuttle function
5. Fluorescent display tube lighting check
 - Grid check
 - Anode check
6. LED control function





In the Test mode, the set operates same as usual, except voltage monitoring, communication monitoring, display of fluorescent display tube, and LED control.

1. The routine that monitors +3.3 V (P-CONT) of MB-107 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The set is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube (normally, display is made following the commands from SYSTEM CONTROL)
4. LED control (normally, control is made following the commands from SYSTEM CONTROL)

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

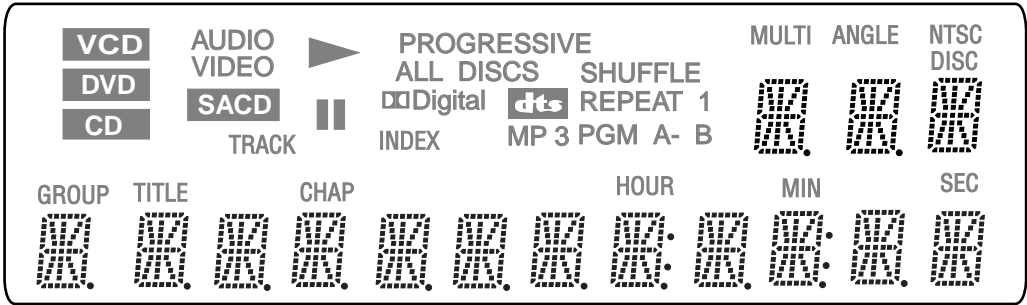
2-1. Self Check Mode Transition Processing

At the AC Power ON after IF CON (IC106) was reset, the input to 10pin (SELF CHECK) is judged and if "Low" is entered, the main unit transits to the Self Check mode. In this port input judgment, the result of 3-time attempts must be same (assuming that the MB-107 board is not connected). While pressing the  key on the main unit with the IF CON in STANDBY mode, enter  RETURN →  (or  SET UP) on the remote commander, and the unit transits to the Self Check Mode. The Self Check mode terminates when the IF CON transits to the STANDBY mode.

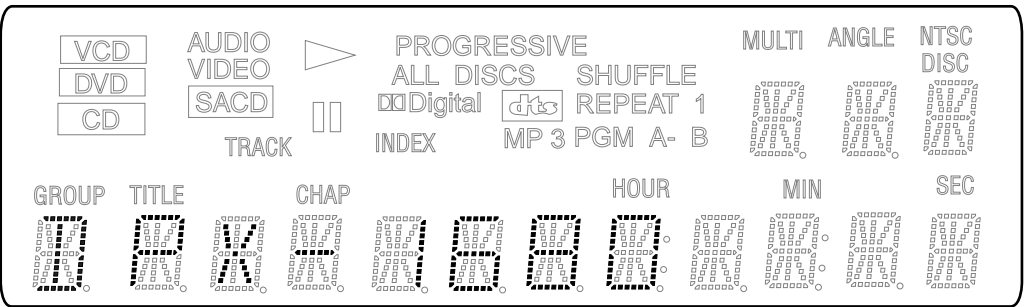
2-2. Operation of Auto Self Check

When the Self Check mode becomes active at the AC Power ON or by key input, the test display of the following steps (1) to (4) is repeated.

(1) FLD and LED all ON (for 5 seconds)



(2) MODEL display (for 2 seconds)



(3) Version display (for 2 seconds)



(4) ROM creation date display (for 2 seconds)



2-3. Each Self Check Function

Each Self Check function tests the FLD display, LED display, and key input.

| Input Voltage [V] | IC106: Pin No. (Signal) | | | | | | |
|-------------------|-------------------------|---------------|--------------|--------------|---------------|--------------|--------------|
| | Pin ③① (AD2) | Pin ③② (AD3) | Pin ③③ (AD4) | Pin ③④ (AD5) | Pin ③⑤ (AD6) | Pin ③⑥ (AD7) | Pin ③⑦ (AD8) |
| 0 – 0.2 | TOP MENU | PICTURE MODE | LEFT | EJECT | LOAD | PLAY | POWER |
| 0.6 – 0.82 | DISPLAY | SURROUND | DOWN | OPEN/CLOSE | REPEAT | STOP | FILE |
| 1.16 – 1.47 | MENU | FLIP | ENTER | PROGRAM | TIME/TEXT | PAUSE | EDIT |
| 1.8 – 2.12 | RETURN | DISC CHANGE | UP | EASY PLAY | SHUFFLE | JOG | SORT |
| 2.48 – 2.7 | – | DIRECT SEARCH | RIGHT | – | ONE/ALL DISCS | ACS ENTER | FOLDER |
| 3.3 | – | – | – | – | – | – | – |

2-3-1. FLD and LED All ON

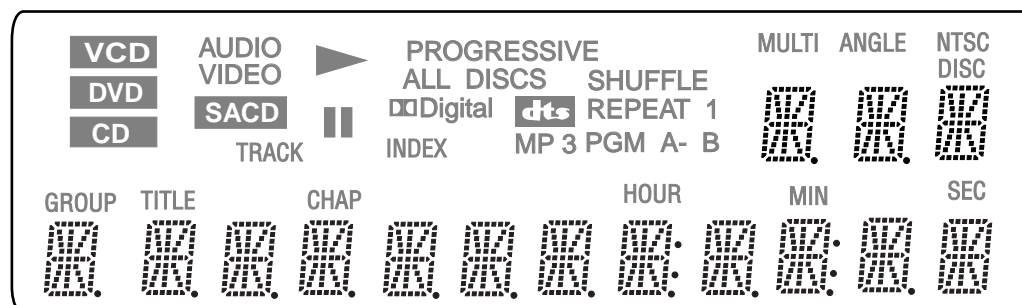
2-3-1-1. Transition Keys in Self Check Mode

- key and ≡ key on the main unit
- ← key on the main unit and the remote commander

2-3-1-2. Operation and Display

In this mode, all LEDs except STANDBY LED and all segments of FLD turn ON.

Example of FLD all ON



2-3-2. Main Unit Key Name Display and Key Code Display

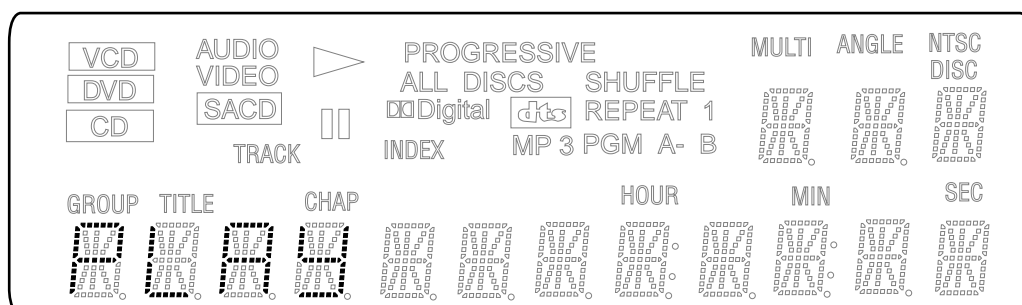
2-3-2-1. Transition Keys in Self Check Mode


- Keys on main unit except keys transited in self check

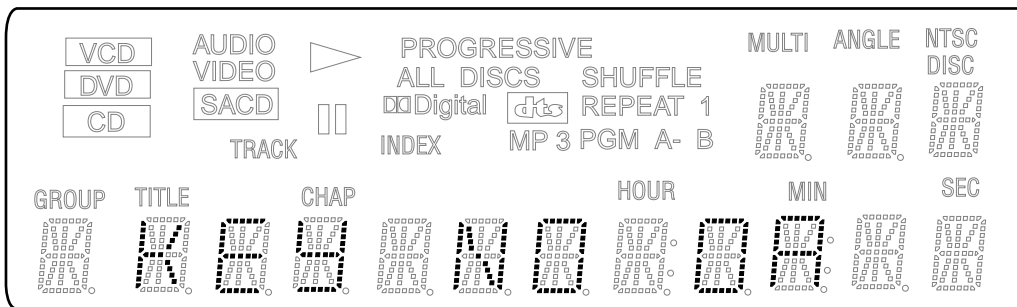
2-3-2-2. Operation and Display

When a key on the main unit is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the **DISPLAY** key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

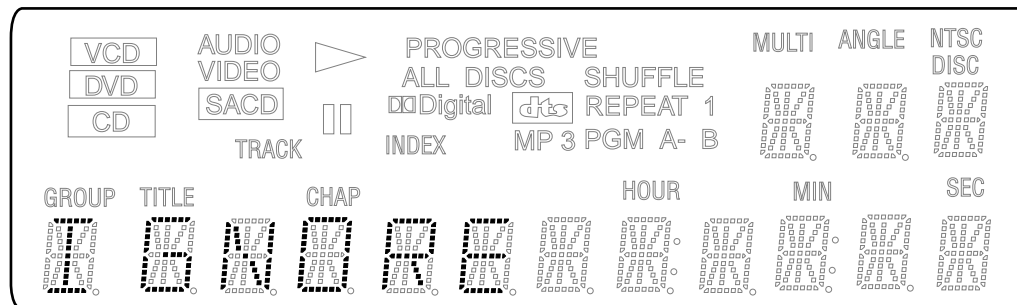
FLD display (at input of ≡ key on the main unit)



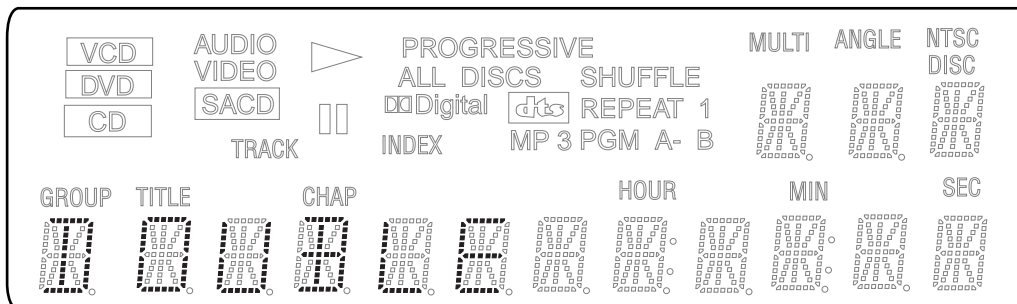
Key code display (at input of  key, Key code: 0Ah)



At input of faulty voltage



When two keys are pressed




2-3-3. Remote Commander Key Name Display and Key Code Display

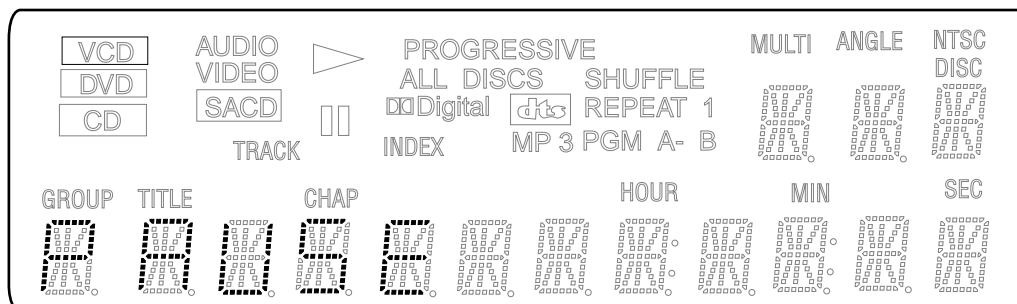
2-3-3-1. Transition Keys in Self Check Mode


- Remote commander keys except keys transited in self check

2-3-3-2. Operation and Display

When a key on the remote commander is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the **DISPLAY** key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

Remote commander key name display (at input of  key)



Remote commander key code display (at input of  key, Key code: 39h)



2-3-4. Communication Monitoring Display

The communication state is monitored and displayed while the key name on the main unit and the remote commander is displayed. When the communication to the System Controller failed, VIDEO CD, DVD, and CD segments turn on.

Communication error display (at no key input)




Communication error display (at code display without input of the remote commander)




2-3-5. FLD Anode Test Display and SHUTTLE Click Operation Test

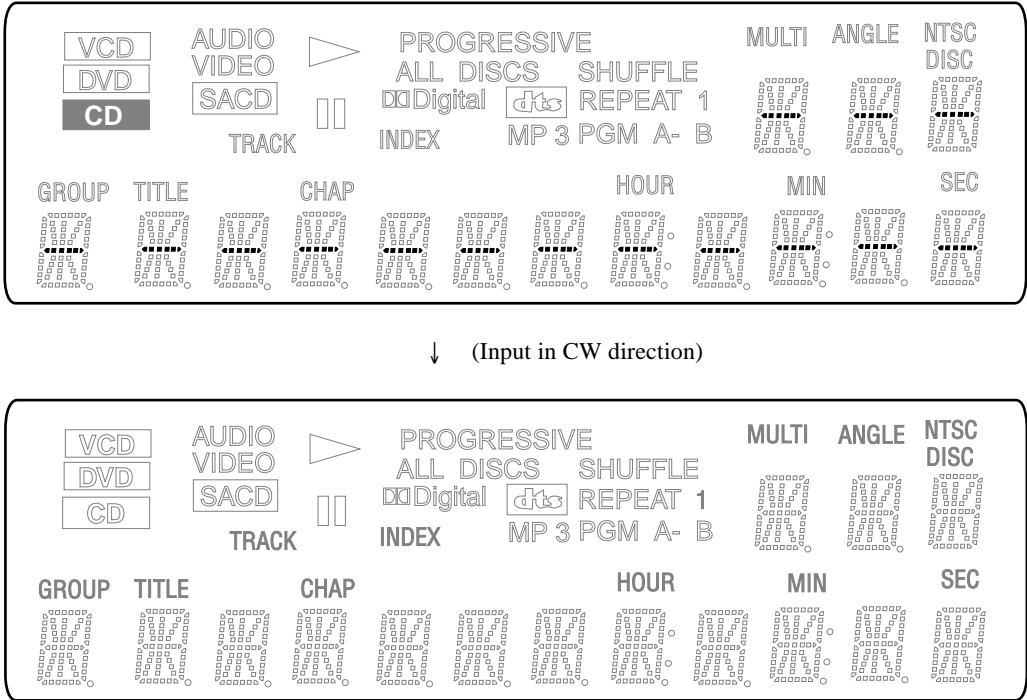
2-3-5-1. Transition Keys in Self Check Mode

-  on the main unit and the remote commander
- SHUTTLE on the remote commander during Anode Test display
(This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

2-3-5-2. Operation and Display

The Self Check mode transits to this mode when  key is entered. Only the first segment of each grid of FLD turns on, and each time the SHUTTLE is entered, the segment of each grid is switched in order. When SHUTTLE input is clockwise, the segment switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each segment turns on individually.


Display at the start of Anode Test




2-3-6. FLD Grid Test Display and SHUTTLE Click

Operation Test

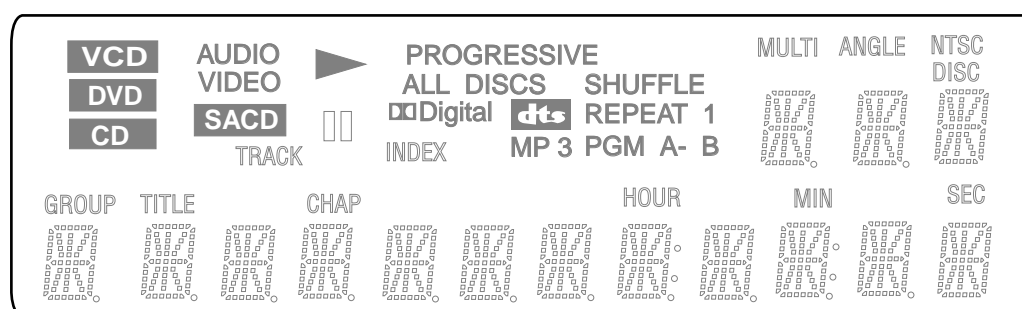
2-3-6-1. Transition Keys in Self Check Mode

-  on the main unit and the remote commander
- SHUTTLE on the remote commander during Grid Test display
(This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

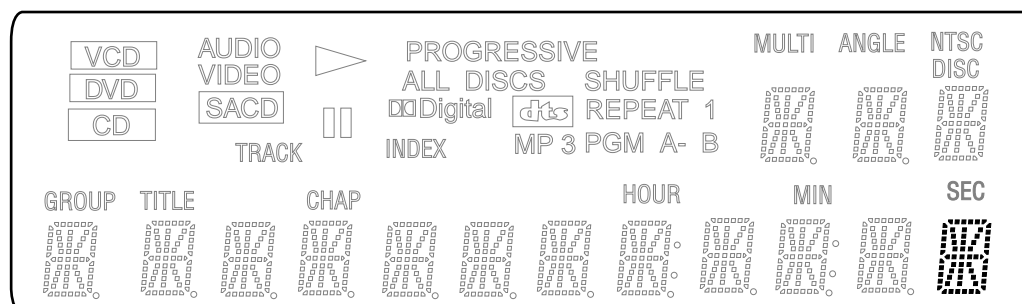
2-3-6-2. Operation and Display

The Self Check mode transits to this mode when  key is entered. The first grid of FLD all turns on and other grids turn off. Each time the SHUTTLE is entered, the grid is switched in order. When SHUTTLE input is clockwise, the grid switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each grid turns on individually.

Display at the start of Grid Test




↓ (Input in CW direction)



2-3-7. LED Test Display

2-3-7-1. Transition Keys in Self Check Mode

-  on the main unit and the remote commander
- SHUTTLE on the remote commander during LED Test display
(This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

2-3-7-2. Operation and Display

LED is switched in order by the input of JOG/SHUTTLE. Also, LED ON/OFF is switched by the input of same key as the function that turns on the LED concerned.

FLD display during LED Test



2-3-8. ACS Test Display

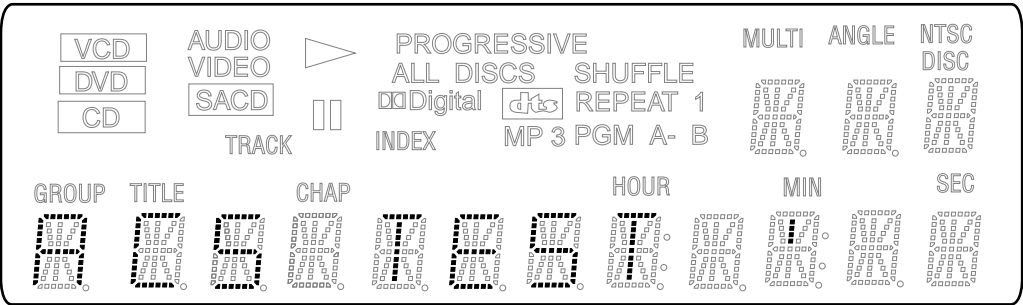
2-3-8-1. Transition Keys in Self Check Mode

- [PREV◀◀/▶▶NEXT] dial on the main unit

2-3-8-2. Operation and Display

The self check mode is transited by pressing [PREV◀◀/▶▶NEXT] dial. When [PREV◀◀/▶▶NEXT] is rotated clockwise or counter-clockwise, the displayed pattern is switched depending on the direction that the dial is rotated.

Display at the start of ACS Test



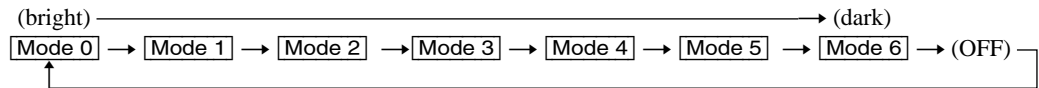
2-3-9. Dimmer Test Mode

2-3-9-1. Transition Keys in Self Check Mode

- [◀◀/▶▶] dial on the main unit

2-3-9-2. Operation and Display

The self check mode transits to the dimmer test mode when [◀◀/▶▶] dial is pressed more than 2 seconds. The indication is switched as follows when [◀◀/▶▶] dial is rotated.



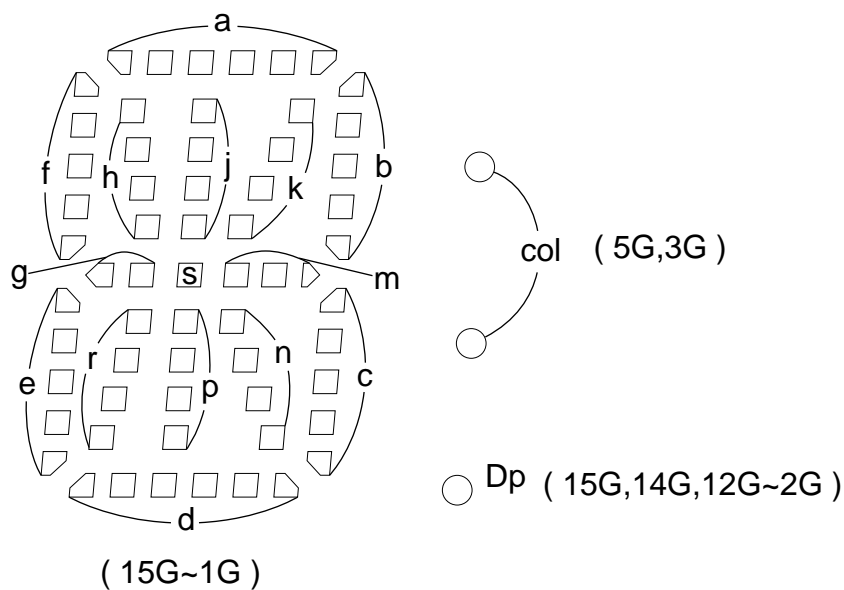
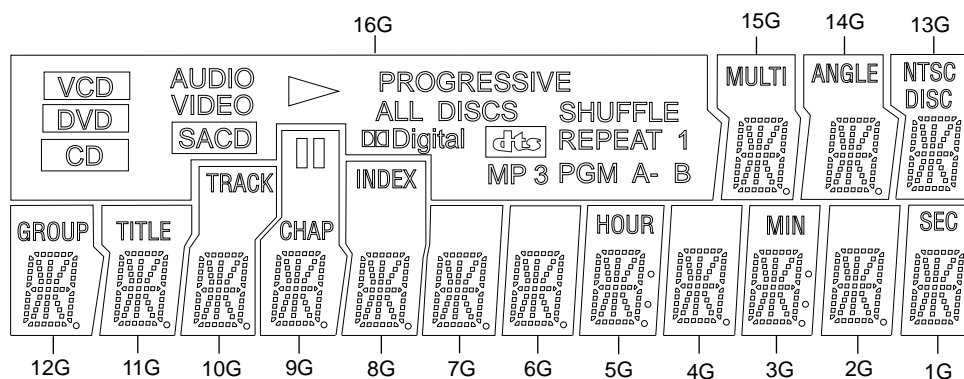
2-3-10. Beep Sound Test

2-3-10-1. Transition Keys in Self Check Mode

- Input of a key on main unit

2-3-10-2. Operation and Display

In the Self Check mode, each time a key on the main unit is entered, a beep sound of 1kHz (100ms) is generated.



ANODE CONNECTION

| | 16G | 15G | 14G | 13G | 12G | 11G | 10G | 9G | 8G | 7G | 6G | 5G | 4G | 3G | 2G | 1G |
|-----|-------------|-------|-------|------|-------|-------|-------|------|-------|----|----|------|----|-----|----|-----|
| P1 | CD | a | a | a | a | a | a | a | a | a | a | a | a | a | a | a |
| P2 | SACD | h | h | h | h | h | h | h | h | h | h | h | h | h | h | h |
| P3 | DVD | j | j | j | j | j | j | j | j | j | j | j | j | j | j | j |
| P4 | VCD | k | k | k | k | k | k | k | k | k | k | k | k | k | k | k |
| P5 | VIDEO | b | b | b | b | b | b | b | b | b | b | b | b | b | b | b |
| P6 | AUDIO | f | f | f | f | f | f | f | f | f | f | f | f | f | f | f |
| P7 | Digital | m | m | m | m | m | m | m | m | m | m | m | m | m | m | m |
| P8 | MP 3 | s | s | s | s | s | s | s | s | s | s | s | s | s | s | s |
| P9 | PGM | g | g | g | g | g | g | g | g | g | g | g | g | g | g | g |
| P10 | A- | e | e | e | e | e | e | e | e | e | e | e | e | e | e | e |
| P11 | B | n | n | n | n | n | n | n | n | n | n | n | n | n | n | n |
| P12 | ▶ | p | p | p | p | p | p | p | p | p | p | p | p | p | p | p |
| P13 | ⏮ | r | r | r | r | r | r | r | r | r | r | r | r | r | r | r |
| P14 | PROGRESSIVE | c | c | c | c | c | c | c | c | c | c | c | c | c | c | c |
| P15 | ALL DISCS | d | d | d | d | d | d | d | d | d | d | d | d | d | d | d |
| P16 | SHUFFLE | - | - | Dp | - | - | - | ⏮ | - | - | - | col | - | col | - | - |
| P17 | REPEAT | Dp | Dp | DISC | Dp | Dp | Dp | Dp | Dp | Dp | Dp | Dp | Dp | Dp | Dp | Dp |
| P18 | 1 | MULTI | ANGLE | NTSC | GROUP | TITLE | TRACK | CHAP | INDEX | - | - | HOUR | - | MIN | - | SEC |

6-11. TROUBLESHOOTING

6-11-1. Cannot Enter Test Mode

You cannot enter the Test mode when either button has been pressed by any reason with the board assembled in the front panel. In this state, the power does not turn on even under normal condition (the unit is kept in standby state), and also no button is active and the remote commander is not accepted. In this case, disconnect the MB-107 board with the SELF CHECK (pin ⑩) of IF CON (IC106) on the FR-189 board kept in low state, supply AC, and the IF CON self-diagnosis mode will be forcibly activated. The IF CON (IC106) checks the SELF CHECK port only after the power on reset (only at AC supply, not in standby state). If any button is pressed, its name is displayed on the fluorescent display tube. But, if other than "NOTHING" is displayed though no button is pressed, it means that any button has been pressed.

6-11-2. Faults in Test Mode (MB-107 board)

1. The test mode menu is not displayed.

1-1. Board visual check

Check that the ICs of SYSCON (IC104), ROM (IC106 or IC107), AVD (IC403), ARP & SERVO (IC301) are working correctly.

Check that outside appearance of the ICs is normal.

Check that IC pins are not short-circuited.

Check that there is no soldering error.

Check that outside appearance of the capacitors and resistors is normal.

1-2. Power supply voltage check

Check the power voltage of the power connector (CN101).

Check the power voltage of SYSCON (IC104).

Check the power voltage of ROM (IC106 or IC107).

Check the power voltage of AVD (IC403).

Check the power voltage of ARP & SERVO (IC301).

If the power voltage has any abnormality →

Check that the power supply lines are not shorted.

Check that there is no soldering error.

If any abnormality cannot be found still →

Check that each IC is working normally.

1-3. Clock signal check

Measure the clock signal frequency at CPUCK (CL102) of SYSCON (IC104) with an oscilloscope.

If the 8.25 MHz signal appears. → Check the machine according to section 1-3-1

If the 33 MHz signal appears. → Check the machine according to section 1-3-2.

If other frequencies are output.

R106 and R107 have defective soldering, X101 crystal oscillator is defective.

If the measurement point is fixed to either "H" or "L". →

Observe XFRRST (pin-⑦⑨) of SYSCON (IC104) with an oscilloscope.

If the measurement point is "L", check the following items.

If the IC has defective soldering, if the IC is short-circuited.

If the measurement point is "H",

→ Component X101 or SYSCON (IC104) is defective.

1-3-1. When the 8.25 MHz signal appears at CPUCK

• Check the XRD, XWRH and CS0X signal.

Observe XRD (pin-⑦⑨), XWRH (pin-⑦①), and CS0X (pin-⑤⑨) of SYSCON (IC104) with an oscilloscope.

If these pins are fixed to either "L" (0V) or "H" (3.3V), or if these pins stay in the center voltage, check the followings.

Check if the signal line does not have the defective soldering.

Check if the signal line is short-circuited with other signal lines.

If you cannot find any problem → SYSCON (IC104) is defective.

• HA [0 to 21] signal and HD [0 to 15] signal check

Observe HA [0 to 21] (pins-⑩② to ⑩⑨, ⑩① to ⑩⑩, ① to ⑤) of SYSCON (IC104) and HD [0 to 15] (pins-⑤⑤ to ⑩⑩) with an oscilloscope.

If these pins are fixed to either "L" (0V) or "H" (3.3V), or if the HA pin stays in the center voltage, check the followings. (HD stays in the center voltage when it is normal.)

→ Check if the signal line does not have the defective soldering, or is short-circuited with other signal line or SYSCON (IC104) is defective.

• Reset signal check

Check if XFRRST (pin-⑦⑨) of SYSCON (IC104) normal or not.

The signal starts up at the same time as Vcc → Defective soldering.

If the trouble does not apply to any of the above-described phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

1-3-2. When the 33 MHz signal appears at CPUCK

• WAIT signal check

Observe XWAIT (pin-⑧7) of SYSCON (IC104) with an oscilloscope.

If it is fixed to "L" (0V). → Observe CS2X to CS5X (pins-⑧0 to ⑧3).

If CS2X or CS3X is "L". → AVD (IC403) has defective soldering or AVD is defective.

If CS4X or CS5X is "L". → ARP & SERVO (IC301) has defective soldering or ARP & SERVO is defective.

If any one of the above is not "L". → XWAIT or CSnX is short-circuited or has the defective soldering or AVD (IC403) is defective or ARP & SERVO (IC301) is defective.

Center voltage → The XWAIT line has defective soldering or is short-circuited or AVD (IC403) is defective or ARP & SERVO (IC301) is defective or SYSCON (IC104) is defective.

• CSnX signal check

Observe CS0X to CS5X (pins-⑧8 to ⑧3) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or if to center voltage → Check that the ICs do not have the defective soldering or is short-circuited with the other signal lines or SYSCON (IC104) is defective.

CS0X: ROM (IC106 or IC107)

CS2X, CS3X: AVD (IC403)

CS4X, CS5X: ARP & SERVO (IC301)

If the trouble symptom does not apply to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

2. Test mode menu is displayed but the machine stops when menu is selected

2-1. AVD (IC403) check

Observe SDCLKO (pin-②7) of AVD (IC403) with an oscilloscope.

95 MHz → No problem

27 MHz → Observe the XRST, HA, HD, XRD, XWRH INT and CS signal waveform at the respective pins of AVDEC, AVD (IC403) is defective.

If the signal is other than the above frequencies → AVD (IC403) 27MHz signal line (CLKI (pin-①58), SCLKIN (pin-①60)) is short-circuited, IC mount is defective, AVD (IC403) is defective, PLL (IC103) is defective.

2-2. INT signal check

Observe INT0 to 2 (pins-①6 to ①8) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or fixed to the center voltage → Check that the ICs do not have the defective soldering, or are short-circuited, SYSCON (IC104) is defective, or the following ICs are not defective.

INT0: AVD (IC403)

INT1, INT2: ARP & SERVO (IC301)

2-3. If any abnormality cannot be confirmed by the above-described checks, check the CS signal that is currently output.

The CS signal other than CS0X is being output. → IC mount is defective or the IC is defective depending on the moving CS signal.

CS2X, CS3X: AVD (IC403)

CS4X, CS5X: ARP & SERVO (IC301)

If the trouble is not applicable to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

3. If the message "SDSP No Ack" appears after the menu is displayed.

3-1. ARP & SERVO clock signal check

Check frequency of CLKIN (pin-①80)

33 MHz → Normal

Frequency other than 33 MHz → CLKIN is short-circuited or defective soldering or PLL (IC103) is defective or ARP & SERVO (IC301) is defective

3-2. ARP & SERVO (IC301) PLL oscillation check

Observe PLCKO (pin-⑧7) of ARP & SERVO (IC301) with an oscilloscope.

If the pin is fixed to either "L" (0V) or "H" (3.3V).

If XRST is fixed to "L". XRST has the defective soldering. In all other cases. ARP & SERVO (IC301) is defective

If it is oscillating.

HA [0 to 7] are HD [8 to 15] are short-circuited, check XSDSPIT and XSDSPCS or ARP & SERVO (IC301) is defective.

4. If trouble occurs at the specific item of the "Diag All Check".

IC mount of the NG item is defective or IC is defective.

5. Picture and audio are not output.

Check connection of CN601, CN501

Check for the defective connection of flat cable and check of damage of the flat cable.

6. Picture is output but audio is not output.

Check the audio data output (at pins-②4, ②8, and ②9) of AVD (IC403)

The audio data is not output. → AVD (IC403) or audio DAC (IC503) mount is defective or power supply is defective or AVD (IC403) or audio DAC (IC503) is defective.

PLL (IC103) 512fs output check

If the frequency or waveform has abnormality. → The signal line has defective soldering or the signal line is short-circuited with other signal lines or PLL (IC103) is defective.

7. Audio is output but picture is not output.

Observe pins-③7, ③8, ③9, ④2, ④3 and ④4 of VDAC (IC604) with an oscilloscope.

If the analog signal is not output. → The signal line has the defective soldering or is short-circuited or parts are defective or VDAC (IC604) is defective.

6-11-3. Drive Auto Adjustment stops due to error.

The ARP & SERVO (IC301) analog circuit of MB-107 board is defective or RF-Amp (IC201) or M-Driver (IC202) peripheral circuit is defective or optical pickup block is defective or flat cable connection is defective

6-11-4. The product itself is defective.

• If MB-107 does not have any problem,

The board other than MB-107 board is defective or connection is defective or optical pickup block is defective or mechanism deck is defective

1. Power LED does not light in Red when the AC power is turned on.

Check the EVER -11V (pin-①), EVER+5V (pin-⑤), EVER +11V (pin-④) voltage of the power supply block CN201.

If voltage is abnormal. → The power supply block is defective.

2. Power LED does not light in green after transmitting the POWER on command. It remains lighting in red (in the STANDBY mode).

2-1. Check the EVER -11V (pin-①), EVER+5V (pin-⑤), EVER+11V (pin-④) voltage at CN201 of the power supply block/

If voltage is abnormal. → The power supply block is defective.

2-2. Check if the fuse on the power block has blown or not.

If the fuse has blown → Replace the fuse.

2-3. Check the P-CONT (pin-⑨) at CN103 of the FR-189 board and P-CONT (pin-⑥) at CN301 of the AI-25 board when the POWER button is pressed.

If it remains at “L”,

→ The signal line has the defective soldering or it is short-circuited with other signal lines or capacitor or resistor is defective or IFCON is defective or connection between the power supply block and the AI-25 board is defective, or connector installation is defective, or the power supply block is defective.

2-4. Check if the button is kept depressed in the IFCON self mode.

If the button is kept depressed. → The front panel is defective, or FR-189 board is defective.

2-5. Check PONCHK (pin-⑩) of IFCON (IC106) on the FR-189 board.

If it is 0.5 V or more. → The power supply is defective, or FR-189 board is defective.

3. Power LED becomes red (STANDBY mode) in at once through Power LED lights in Green once when the POWER button is pressed.

3-1. Check CN201 voltage of the power supply block when the LED lights in green.

If voltage is abnormal. → The power supply block is defective, or the FR-189 board is defective, or MB-107 is defective

3-2. Check XFRRST (pin-②) at CN103 on the MB-107 board.

If it is fixed to “L”. → The signal line has defective soldering, or is short-circuited with other signal lines, or parts are defective.

3-3. Check IFBSY (pin-③), XIFCS (pin-④), SI0 (pin-⑤), SO0 (pin-⑥) and SC0 (pin-⑦) at CN103

If they are fixed to “H” or “L”.

→ The signal line has defective soldering, or is short-circuited with other signal line, or parts are defective, or SYSCON (IC104) is defective

If they change between “L/H”.

Connector installation is defective, or the FR-189 board is defective, or SYSCON (IC104) is defective.

If they stay in the center voltage.

Poor connection of flexible wiring board such as it is inserted in an angle diagonally, or defective soldering, or is short-circuited with other signal line.

3-4. Check PONCHK (pin-⑩) of IFCON (IC106) on the FR-189 board.

If rise-up time from 0.5 V to 1.5 V or more takes longer time, or it does not exceed 1.5 V or more. → The FR board is defective.

4. The LED lights in green but the FL display does not light when the POWER button is pressed.

Connection between the power supply block and the AI-25 board is defective, or connector installation is defective, or the FR-189 board is defective.

5. Both picture and audio are not output.

Connection(s) between the power supply block and the AI-25 board, the AI-25 board and the FR-189 board, the AI-25 board and AV-66/VD-33 boards, AV-66/VD-33 boards and MB-107 board is/are defective, or connector installation is defective, or AV-66 and/or VD-33 is/are defective.

6. Picture is not normal. (Block noise or others appear.)

The MB-107 board AVD (IC403) or SDRAM (IC404, IC405) is defective, or ARP & SERVO (IC301) is defective.

SECTION 7 ELECTRICAL ADJUSTMENT

In making adjustment, refer to 7-6. Adjustment Related Parts Arrangement.

Note: During diagnostic check, the characters and color bars can be seen only with the NTSC monitor. Therefore, for diagnostic check, use the monitor that supports both NTSC and PAL modes.

Use the reference disc for PAL for check, and use the reference disc for NTSC for adjustment.

This section describes procedures and instructions necessary for adjusting electrical circuits in this set.

Instruments required:

- 1) Color monitor TV
- 2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
- 3) Frequency counter (over 8 digits)
- 4) Digital voltmeter
- 5) Standard commander (RMT-D149A)
- 6) DVD reference disc
 - HLX-501 (J-6090-071-A) (dual layer) (NTSC)
 - HLX-503 (J-6090-069-A) (single layer) (NTSC)
 - HLX-504 (J-6090-088-A) (single layer) (NTSC)
 - HLX-505 (J-6090-089-A) (dual layer) (NTSC)
 - HLX-506 (J-6090-077-A) (single layer) (PAL)
 - HLX-507 (J-6090-078-A)(dual layer) (PAL)
- 7) SACD reference disc
 - HLXA-509 (J-6090-090-A)
- 8) Extension Cable (J-6090-107-A)

7-1. POWER SUPPLY CHECK

1. ZSSR113M Board

| | |
|--------------------|---------------------|
| Mode | E-E |
| Instrument | Digital voltmeter |
| EVER +5 V Check | |
| Test point | CN201 pin ⑤ |
| Specification | 5.0 ± 0.3 Vdc |
| SW +3.3 V Check | |
| Test point | CN201 pin ⑫ |
| Specification | 3.5 ± 0.2 Vdc |
| SW +5 V Check | |
| Test point | CN201 pin ⑪ |
| Specification | 5.0 ± 0.3 Vdc |
| SW +11 V (M) Check | |
| Test point | CN201 pin ⑦, ⑧ |
| Specification | 11.0 ± 1.0 Vdc |
| EVER +11 V Check | |
| Test point | CN201 pin ④ |
| Specification | 11.0 ± 1.0 Vdc |
| EVER -11 V Check | |
| Test point | CN201 pin ① |
| Specification | -11.0 ± 1.0 Vdc |

Checking method:

- 1) Confirm that each voltage satisfies the specification.

⚠ Caution

Never touch the heat sink that is the primary part. It is feared that you may get an electric shock.

7-2. ADJUSTMENT OF VIDEO SYSTEM

1. Video Level Adjustment (MB-107 BOARD)

<Purpose>

This adjustment is made to satisfy the NTSC standard, and if not adjusted correctly, the brightness will be too large or small.

| Mode | Video level adjustment in test mode |
|-------------------|--|
| Signal | Color bars |
| Test point | VIDEO OUTPUT connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Adjusting element | RV601 |
| Specification | $1.00 \begin{smallmatrix} +0.04 \\ -0.02 \end{smallmatrix}$ Vp-p |

Adjusting method:

- 1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
- 2) Adjust the RV601 to attain $1.00 \begin{smallmatrix} +0.04 \\ -0.02 \end{smallmatrix}$ Vp-p.

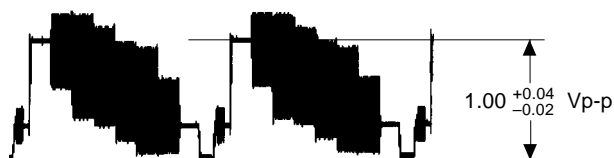


Figure 7-1

2. Component Video Output Level Adjustment (MB-107 BOARD)

<Purpose>

This adjustments component video output. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

| Mode | Video level adjustment in test mode |
|-------------------|--|
| Signal | Color bars |
| Test point | COMPONENT VIDEO OUT (Y) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Adjusting element | RV602 |
| Specification | $1.00 \begin{smallmatrix} +0.04 \\ -0.02 \end{smallmatrix}$ Vp-p |

Adjusting method:

- 1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
- 2) Adjust the RV602 to attain $1.00 \begin{smallmatrix} +0.04 \\ -0.02 \end{smallmatrix}$ Vp-p



Figure 7-2

3. Checking S Video Output S-Y

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

| Mode | Video level adjustment in test mode |
|---------------|--|
| Signal | Color bars |
| Test point | S VIDEO OUT (S-Y) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Specification | 1.00 ± 0.05 Vp-p |

Checking method:

- 1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the S-Y level is 1.00 ± 0.05 Vp-p.



Figure 7-3

4. Checking S Video Output S-C

<Purpose>

This checks whether the S-C satisfies the NTSC Standard. If it is not correct, the colors will be too dark or light.

| Mode | Video level adjustment in test mode |
|---------------|--|
| Signal | Color bars |
| Test point | S VIDEO OUT (S-C) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Specification | $A = 286 \pm 30$ mVp-p (NTSC) |

Checking method:

- 1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the S-C burst is "A".

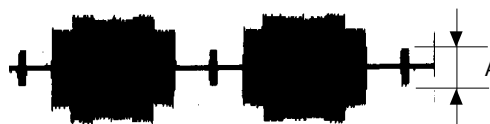


Figure 7-4

5. Checking Component Video Output Y

<Purpose>

This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

| | |
|---------------|---|
| Mode | Video level adjustment in test mode |
| Signal | Color bars |
| Test point | COMPONENT VIDEO OUT (Y) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Specification | 1.00 ± 0.05 Vp-p |

Checking method:

- 1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the Y level is 1.00 ± 0.05 Vp-p.

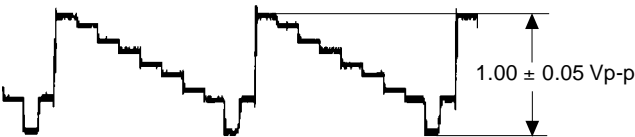


Figure 7-5

6. Checking Component Video Output B-Y

<Purpose>

This checks component video output B-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

| | |
|---------------|---|
| Mode | Video level adjustment in test mode |
| Signal | Color bars |
| Test point | COMPONENT VIDEO OUT (P _B) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Specification | 646 ± 50 mVp-p |

Checking method:

- 1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the B-Y level is 646 ± 50 mVp-p .

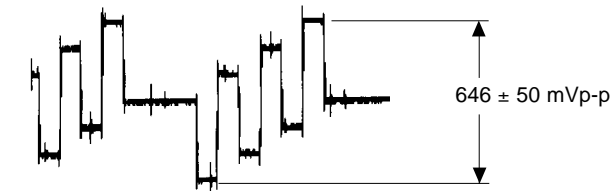


Figure 7-6

7. Checking Component Video Output R-Y

<Purpose>

This checks component video output R-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

| | |
|---------------|---|
| Mode | Video level adjustment in test mode |
| Signal | Color bars |
| Test point | COMPONENT VIDEO OUT (P _R) connector (75 Ω terminated) |
| Instrument | Oscilloscope |
| Specification | 646 ± 50 mVp-p |

Checking method:

- 1) In the test mode initial menu “6” Video Level Adjustment, set so that color bars are generated.
- 2) Confirm that the R-Y level is 646 ± 50 mVp-p.

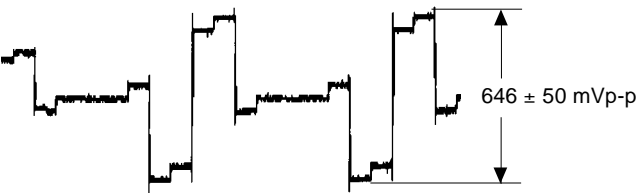
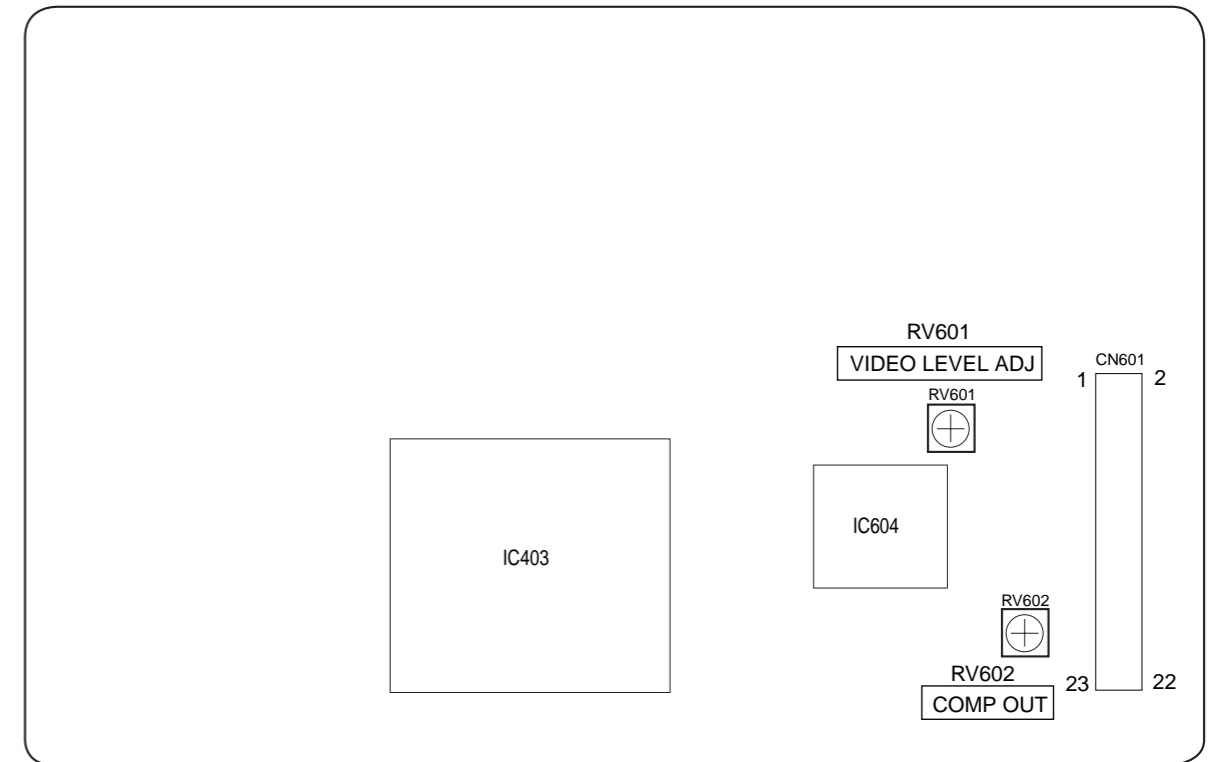


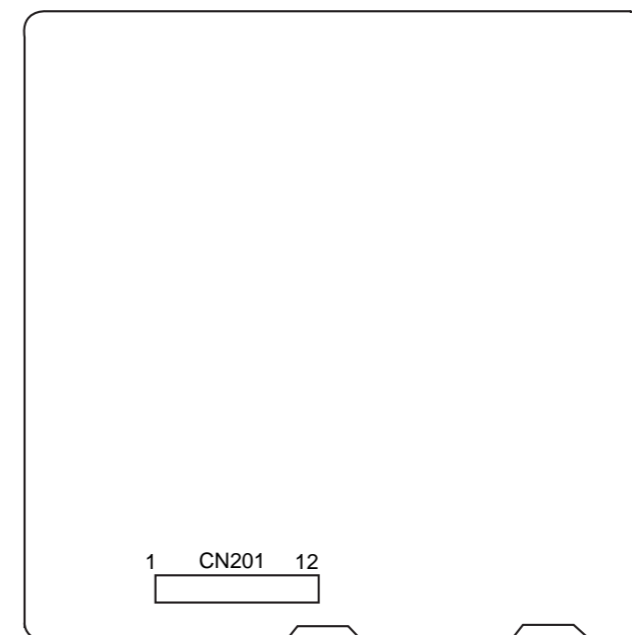
Figure 7-7

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-107 BOARD (SIDE A)



ZSSR113M BOARD (SIDE B)

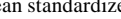


SECTION 8

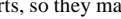
REPAIR PARTS LIST

8-1. EXPLODED VIEWS



NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
 - Color Indication of Appearance Parts
Example:
KNOB, BALANCE (WHITE) . . . (RED)
- 

Parts Color

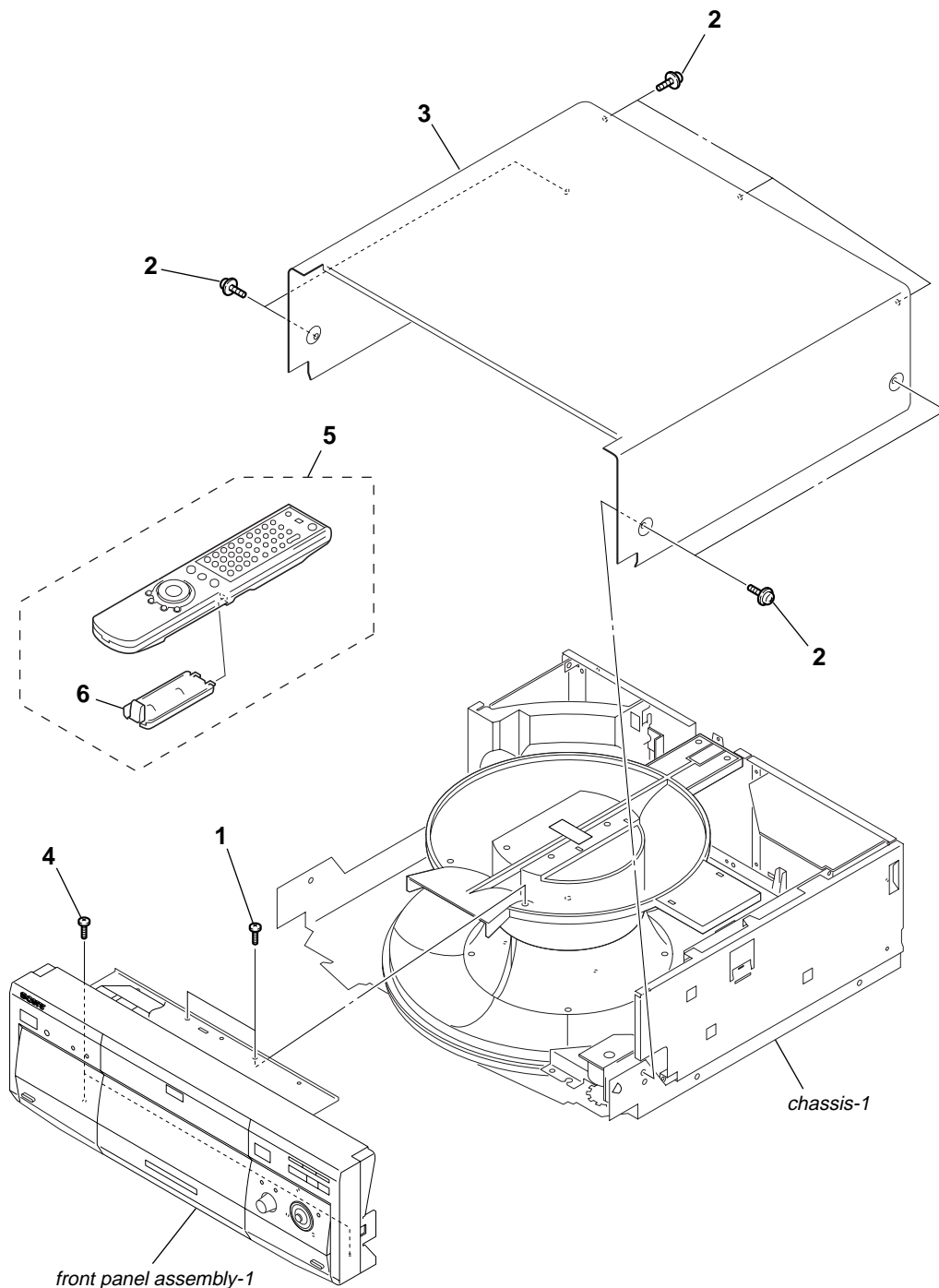


Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
 - The mechanical parts with no reference number in the exploded views are not supplied.
 - Accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

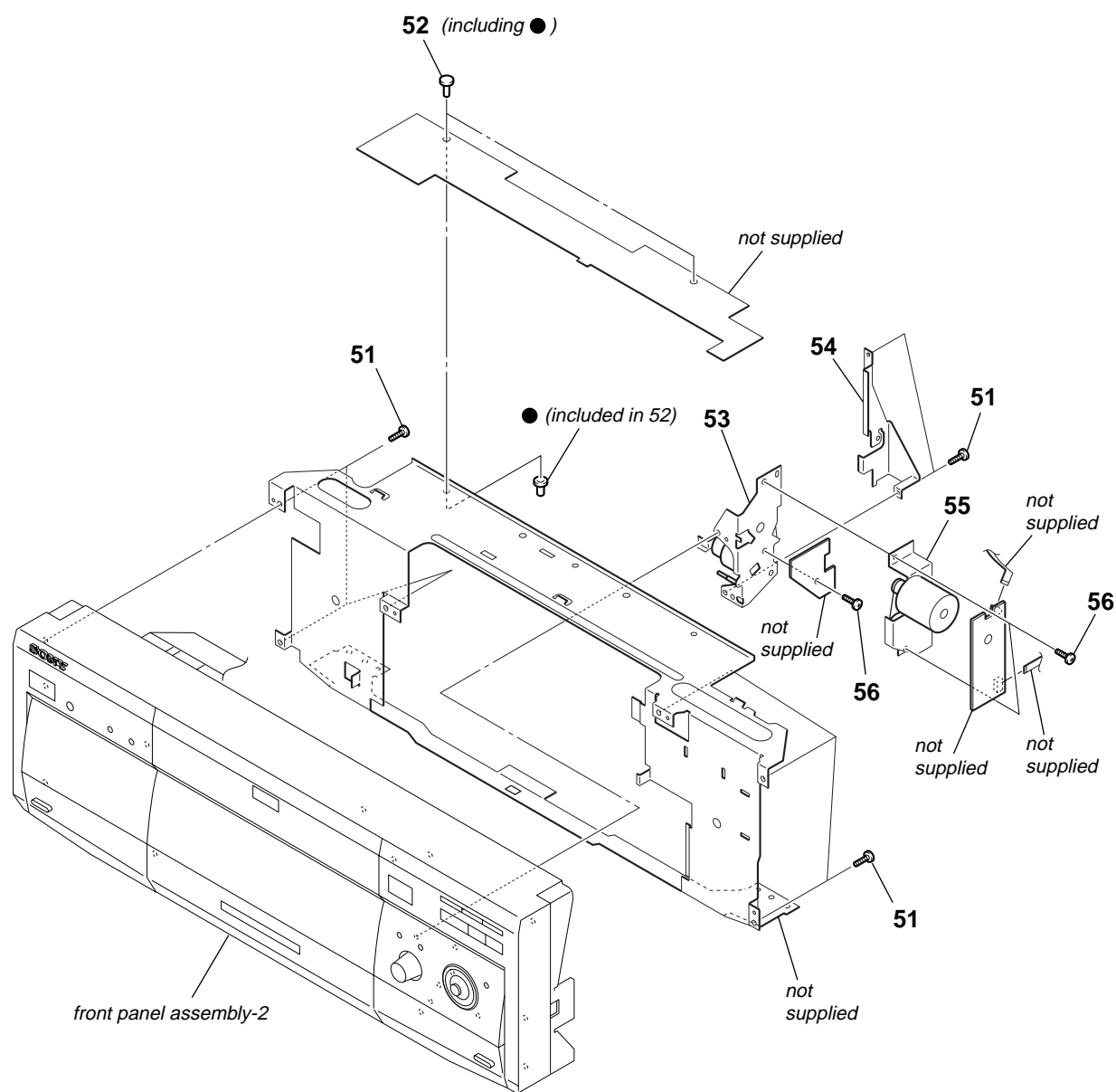
Les composants identifiés par une
marque Δ sont critiques pour la
sécurité.
Ne les remplacer que par une pièce
portant le numéro spécifié.

8-1-1. CASE ASSEMBLY



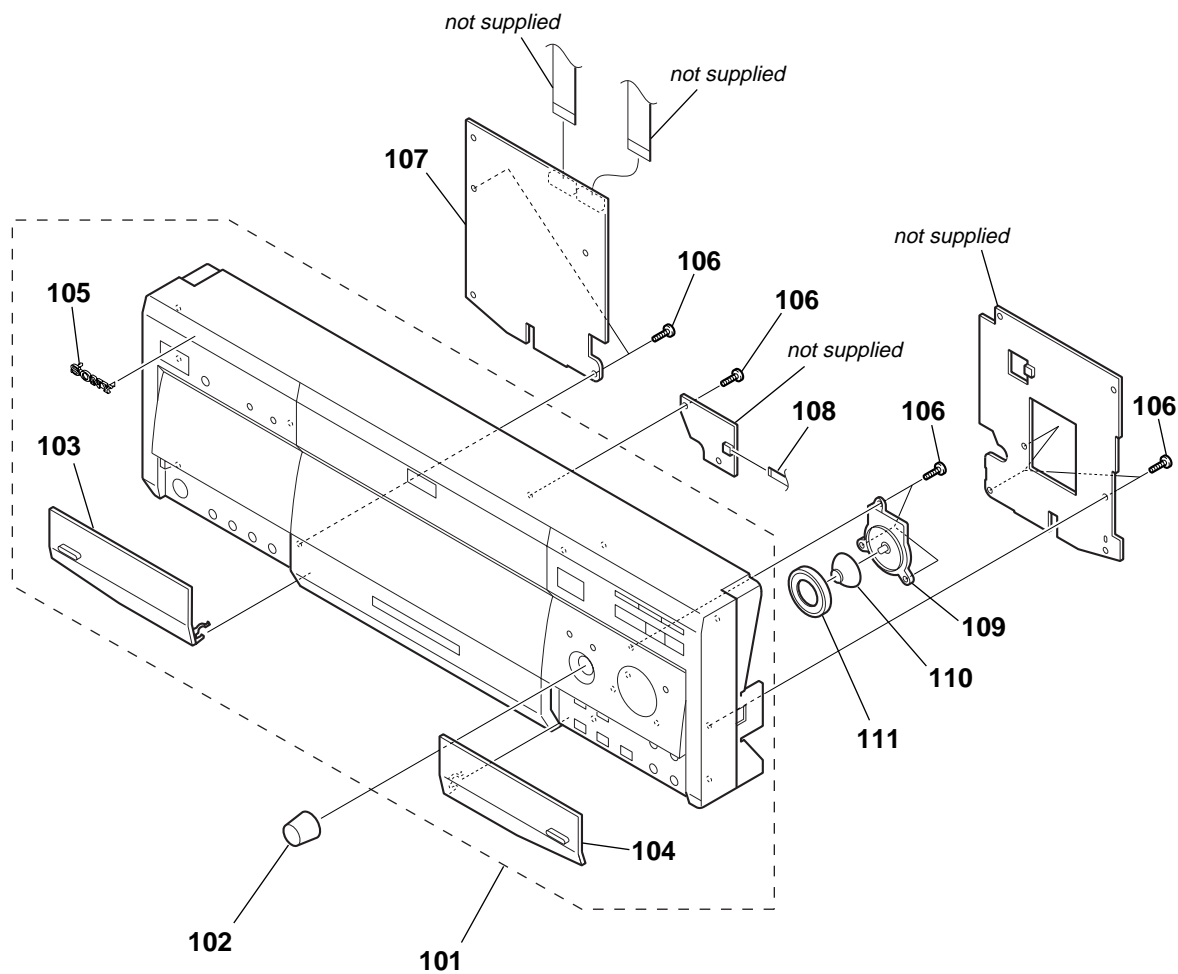
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|--------------------|--------|----------|--------------|-------------------------------|--------|
| 1 | 3-970-608-21 | SUMITITE (B3), +BV | | 4 | 3-970-608-01 | SUMITITE (B3), +BV | |
| 2 | 3-710-901-41 | SCREW, TAPPING | | 5 | 1-477-328-11 | REMOTE COMMANDER (RMT-D149A) | |
| 3 | 3-066-717-01 | CASE, UPPER | | 6 | 3-073-096-01 | CASE, BATTERY (for RMT-D149A) | |

8-1-2. FRONT PANEL ASSEMBLY-1



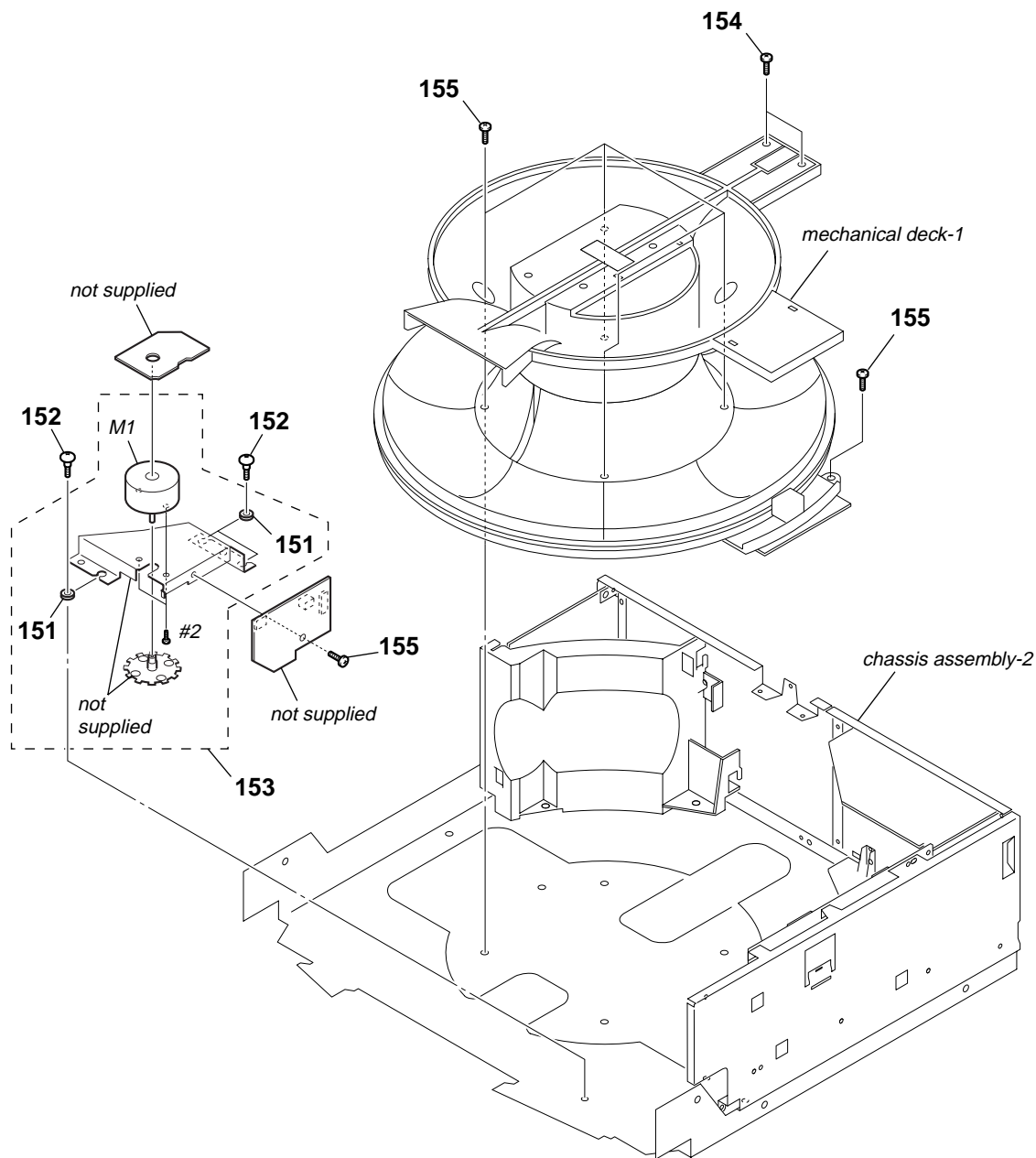
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|------------------------------|--------|----------|--------------|------------------------------|--------|
| 51 | 4-951-620-01 | SCREW (2.6X8), +BVTP | | 54 | 3-066-546-01 | PLATE, SHAFT STOPPER | |
| 52 | 3-531-576-01 | RIVET | | 55 | A-6062-492-B | GEAR (B) BLOCK ASSY, DRIVING | |
| 53 | A-6062-491-D | GEAR (A) BLOCK ASSY, DRIVING | | 56 | 3-970-608-01 | SUMITITE (B3), +BV | |

8-1-3. FRONT PANEL ASSEMBLY-2



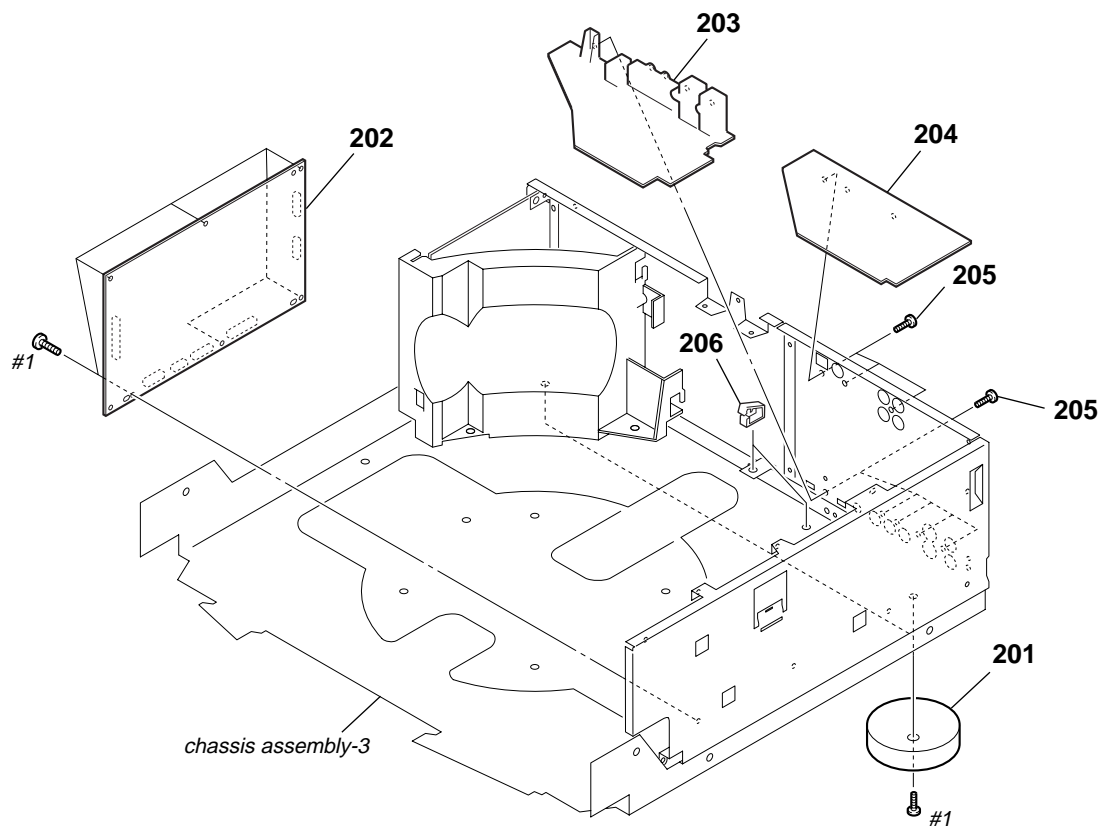
| <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Remark</u> | <u>Ref. No.</u> | <u>Part No.</u> | <u>Description</u> | <u>Remark</u> |
|-----------------|-----------------|----------------------|---------------|-----------------|-----------------|--------------------------------|---------------|
| 101 | A-6061-034-A | PANEL ASSY, FRONT | | 107 | A-6061-059-A | FR-189 BOARD, COMPLETE | |
| 102 | 3-064-088-01 | KNOB, ACS/AMS | | 108 | 1-757-231-11 | CABLE, FLEXIBLE FLAT (FLS-003) | |
| 103 | X-3951-018-1 | PANEL (R) ASSY, SUB | | 109 | 1-476-273-11 | ENCODER, ROTARY | |
| 104 | X-3951-019-1 | PANEL (L) ASSY, SUB | | 110 | 3-058-938-32 | STICK, CURSOR | |
| 105 | 4-963-404-22 | EMBLEM (5-A), SONY | | 111 | 3-058-939-31 | RING, SHUTTLE | |
| 106 | 4-951-620-01 | SCREW (2.6X8), +BVTP | | | | | |

8-1-4. CHASSIS ASSEMBLY-1



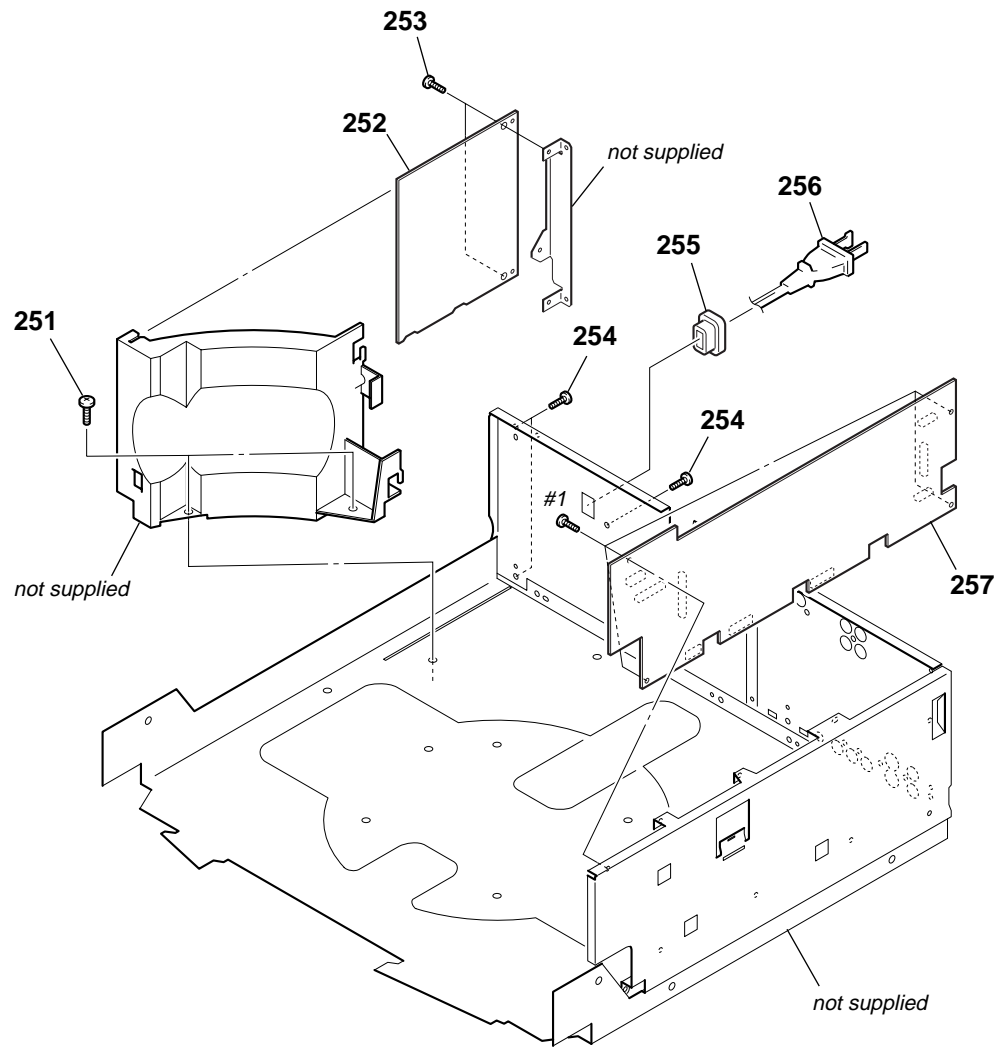
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|------------------------|--------|----------|--------------|--------------------|--------|
| 151 | 3-570-118-00 | CUSHION, MOTOR | | 154 | 3-970-608-21 | SUMITITE (B3), +BV | |
| 152 | 3-064-062-01 | SCREW, CUSHION STOPPER | | 155 | 3-970-608-01 | SUMITITE (B3), +BV | |
| 153 | A-6062-493-A | DRIVING ASSY, T | | M1 | 1-541-632-11 | MOTOR, DC | |

8-1-5. CHASSIS ASSEMBLY-2



| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|------------------------|--------|----------|--------------|-----------------------|--------|
| 201 | 4-948-027-11 | FOOT (DIA. 50) | | 204 | A-6061-051-A | AV-66 BOARD, COMPLETE | |
| 202 | A-6061-049-A | MB-107 BOARD, COMPLETE | | 205 | 3-058-511-51 | +BV IBR | |
| 203 | A-6061-053-A | VD-33 BOARD, COMPLETE | | 206 | 4-962-113-01 | CLAMP | |

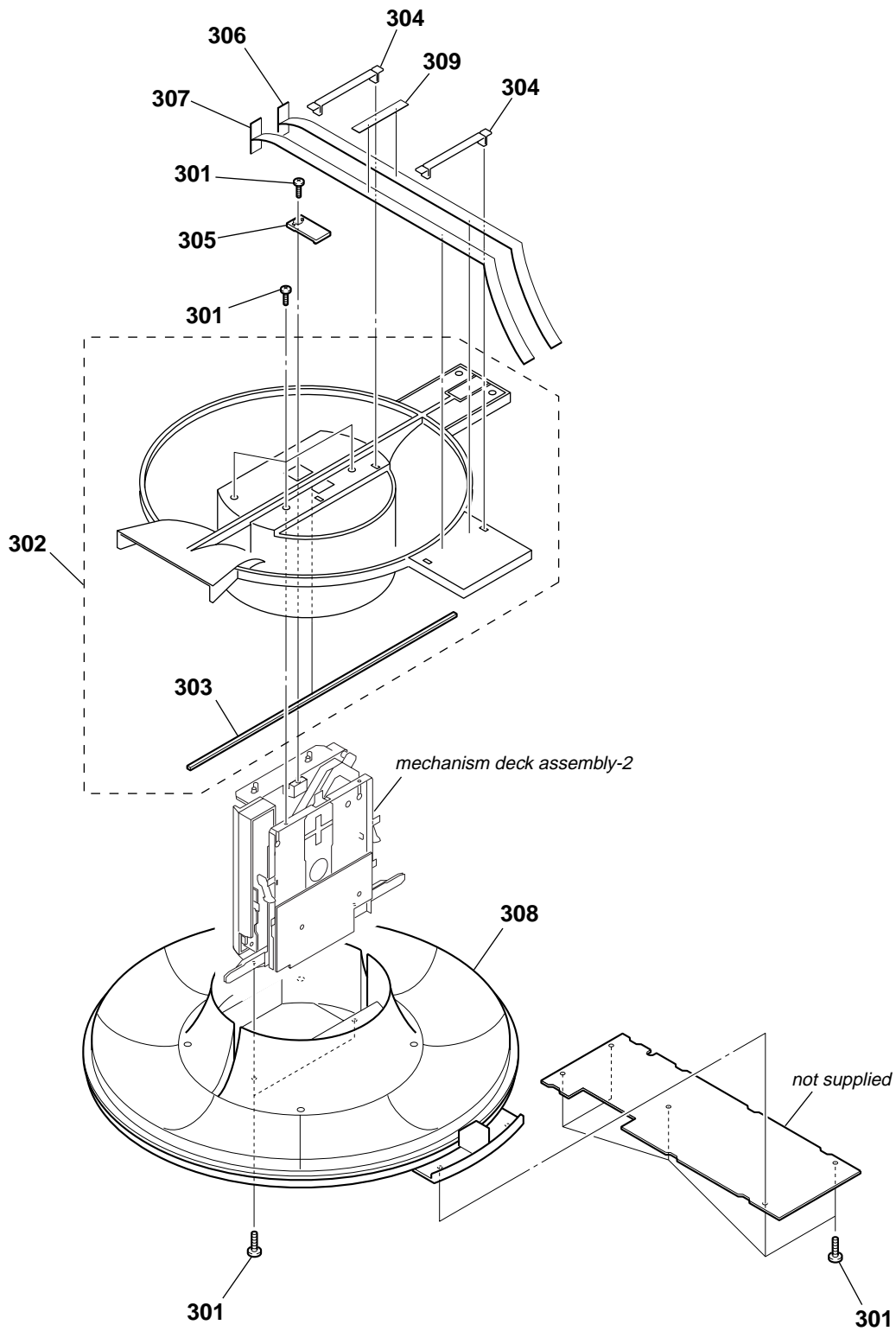
8-1-6. CHASSIS ASSEMBLY-3



| | |
|--|--|
| The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |
|--|--|

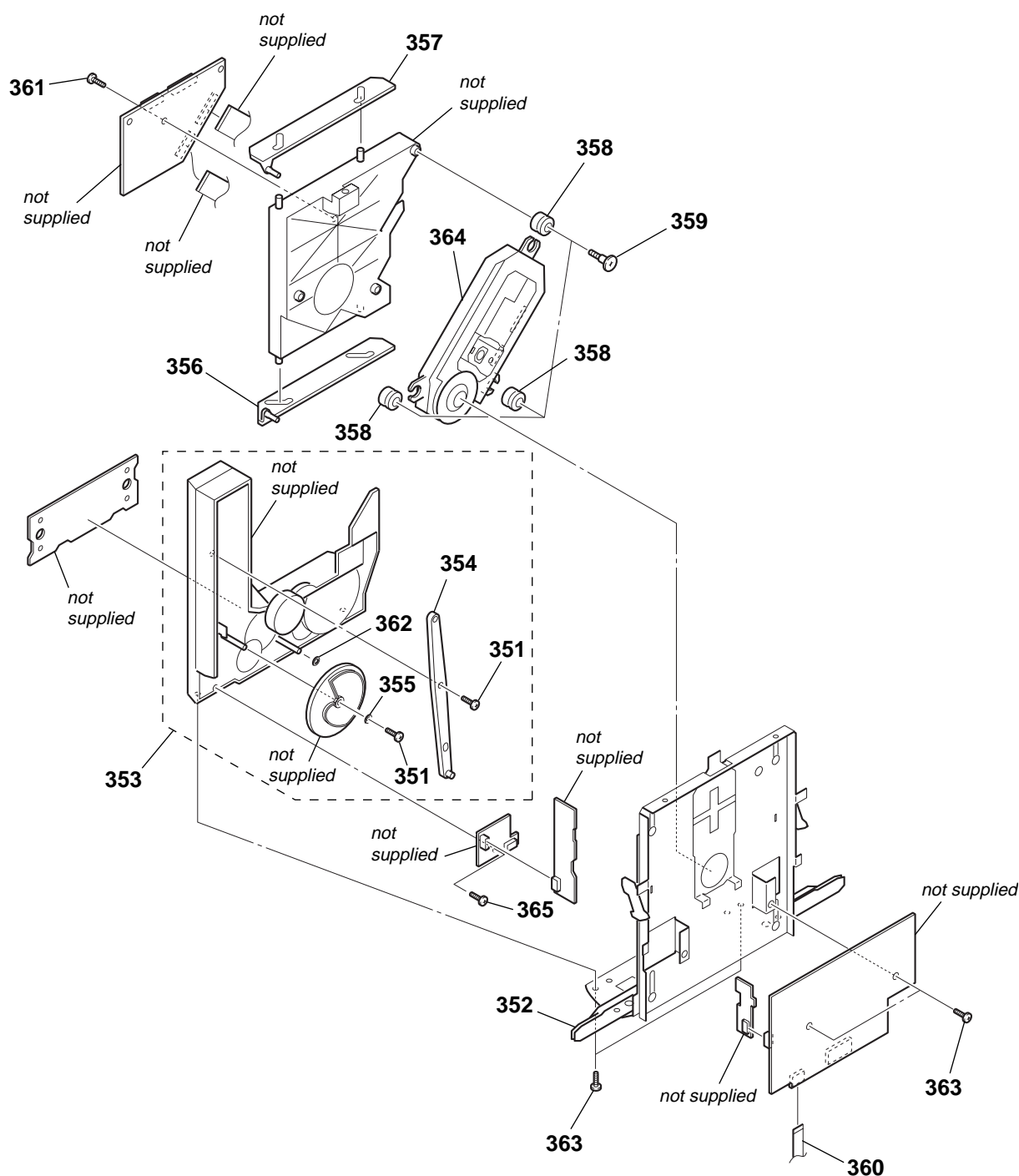
| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|-----------------------------|--------|----------|--------------|----------------------------|--------|
| 251 | 3-970-608-01 | SUMITITE (B3), +BV | | 255 | 4-966-267-12 | BUSHING (FBS001), CORD | |
| ▲ 252 | 1-468-695-11 | POWER BLOCK | | ▲ 256 | 1-757-571-11 | CORD, POWER | |
| 253 | 3-062-340-01 | +BV SUMITITE B3 EXT W (3X8) | | 257 | A-6061-047-A | AI-25 BOARD, COMPLETE | |
| 254 | 3-058-511-51 | +BV IBR | | #1 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 IT-3 | |

8-1-7. MECHANISM DECK ASSEMBLY-1



| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|----------------------|--------|----------|--------------|--------------------------------|--------|
| 301 | 3-970-608-21 | SUMITITE (B3), +BV | | 306 | 1-757-232-11 | CABLE, FLEXIBLE FLAT (FTD-001) | |
| 302 | X-3951-016-1 | GUIDE ASSY, CENTER | | 307 | 1-757-234-11 | CABLE, FLEXIBLE FLAT (FDD-003) | |
| 303 | 3-064-126-01 | SHEET, GUIDE | | 308 | A-6062-496-B | TABLE ASSY, TURN | |
| 304 | 3-064-084-01 | CLAMP (FCR-60), FLAT | | 309 | 3-831-441-99 | CUSHION (A) | |
| 305 | 3-064-063-01 | LINK, CHUCK DRIVING | | | | | |

8-1-8. MECHANISM DECK ASSEMBLY-2



| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|--------------------------------|--------|----------|--------------|--------------------------------|--------|
| 351 | 4-974-711-01 | SCREW (2X5)(P TYIGHT),(+)PTTWH | | 359 | 4-981-923-01 | SCREW (M), STEP | |
| 352 | A-6062-495-F | FRAME BLOCK ASSY, CHUCK | | 360 | 1-757-233-11 | CABLE, FLEXIBLE FLAT (FLC-002) | |
| 353 | A-6062-494-D | CHASSIS BLOCK ASSY, MECHANICAL | | 361 | 4-951-620-01 | SCREW (2.6X8), BVTP | |
| 354 | 3-064-018-02 | LINK, SLIDER | | 362 | 3-701-439-11 | WASHER | |
| 355 | 3-344-901-01 | WASHER, STOPPER | | 363 | 3-970-608-21 | SUMITITE (B3), +BV | |
| 356 | 3-064-081-01 | SLIDER (B) | | Δ 364 | A-6062-709-A | OPTICAL PICK-UP (KHM-270AAA) | |
| 357 | 3-064-080-01 | SLIDER (U) | | 365 | 3-669-480-12 | SCREW, +PTPWH2 | |
| 358 | 3-057-023-01 | INSULATOR (RB) | | | | | |

8-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Not all of the parts for POWER BLOCK (ZSSR113M) are listed.

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . . : μ A. . . uPA. . . : μ PA. . .
uPB. . . : μ PB. . . uPC. . . : μ PC. . .
uPD. . . : μ PD. . .
- CAPACITORS
uF: μ F
- COILS
uH: μ H

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|--|--------|----------|--------------|------------------------------|--------|
| | A-6061-047-A | AI-25 BOARD, COMPLETE ***** (Ref. No. 1, 000 Series) | | IC302 | 8-759-598-69 | IC BA6956AN | |
| | | | | IC303 | 8-759-832-05 | IC BA18BC0FP-E2 | |
| | | < CAPACITOR > | | | | < SHORT > | |
| C301 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | JR300 | 1-216-295-11 | SHORT CHIP 0 | |
| C302 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | JR301 | 1-216-295-11 | SHORT CHIP 0 | |
| C303 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | JR302 | 1-216-295-11 | SHORT CHIP 0 | |
| C304 | 1-128-551-11 | ELECT 22uF 20% 25V | | JR303 | 1-216-295-11 | SHORT CHIP 0 | |
| C305 | 1-126-964-11 | ELECT 10uF 20% 50V | | JR304 | 1-216-295-11 | SHORT CHIP 0 | |
| C307 | 1-104-665-11 | ELECT 100uF 20% 25V | | JR305 | 1-216-295-11 | SHORT CHIP 0 | |
| C310 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | JR310 | 1-216-295-11 | SHORT CHIP 0 | |
| C312 | 1-104-665-11 | ELECT 100uF 20% 25V | | JR311 | 1-216-295-11 | SHORT CHIP 0 | |
| C313 | 1-126-933-11 | ELECT 100uF 20% 16V | | JR312 | 1-216-295-11 | SHORT CHIP 0 | |
| C314 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | | | < TRANSISTOR > | |
| C315 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | Q301 | 8-729-026-49 | TRANSISTOR 2SA1037AK-T146-QR | |
| C316 | 1-126-947-11 | ELECT 47uF 20% 16V | | Q302 | 8-729-424-59 | TRANSISTOR UN2212-TX | |
| C317 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | Q303 | 8-729-048-28 | TRANSISTOR 2SD1766-T100-QR | |
| C319 | 1-104-665-11 | ELECT 100uF 20% 25V | | Q304 | 8-729-424-08 | TRANSISTOR UN2111-TX | |
| C321 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | | Q308 | 8-729-424-59 | TRANSISTOR UN2212-TX | |
| C322 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | | | < RESISTOR > | |
| C323 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | R301 | 1-216-061-00 | RES-CHIP 3.3K 5% 1/10W | |
| C325 | 1-126-933-11 | ELECT 100uF 20% 16V | | R304 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| C326 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | R305 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| C329 | 1-128-551-11 | ELECT 22uF 20% 25V | | R306 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| C332 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | R307 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| C337 | 1-126-964-11 | ELECT 10uF 20% 50V | | R308 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| | | < CONNECTOR > | | R309 | 1-216-609-11 | METAL CHIP 18 0.5% 1/10W | |
| * CN301 | 1-506-477-11 | PIN, CONNECTOR 12P | | R310 | 1-216-061-00 | RES-CHIP 3.3K 5% 1/10W | |
| CN302 | 1-793-674-21 | CONNECTOR, BOARD TO BOARD 7P | | R311 | 1-216-049-11 | RES-CHIP 1K 5% 1/10W | |
| CN304 | 1-793-674-21 | CONNECTOR, BOARD TO BOARD 7P | | R312 | 1-216-035-00 | METAL CHIP 270 5% 1/10W | |
| CN305 | 1-815-386-11 | CONNECTOR, FPC/FFC 29P | | R313 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| * CN306 | 1-785-530-11 | PIN, CONNECTOR (PC BOARD) 10P | | R314 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |
| CN307 | 1-815-149-11 | CONNECTOR, FPC/FFC (1MM PIC)21P | | R315 | 1-216-049-11 | RES-CHIP 1K 5% 1/10W | |
| CN308 | 1-774-758-11 | CONNECTOR, FFC/FPC 11P | | R316 | 1-216-049-11 | RES-CHIP 1K 5% 1/10W | |
| CN309 | 1-774-757-11 | CONNECTOR, FFC/FPC 15P | | R317 | 1-216-043-00 | RES-CHIP 560 5% 1/10W | |
| | | < DIODE > | | R319 | 1-216-073-00 | RES-CHIP 10K 5% 1/10W | |
| D301 | 8-719-069-54 | DIODE UDZSTE-175.1B | | R321 | 1-216-055-00 | METAL CHIP 1.8K 5% 1/10W | |
| D303 | 8-719-056-85 | DIODE UDZSTE-178.2B | | R322 | 1-216-055-00 | METAL CHIP 1.8K 5% 1/10W | |
| | | < IC > | | R332 | 1-216-065-00 | RES-CHIP 4.7K 5% 1/10W | |
| IC301 | 8-759-277-68 | IC LB1648 | | R333 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| | | | | R334 | 1-216-065-00 | RES-CHIP 4.7K 5% 1/10W | |

| Ref. No. | Part No. | Description | Remark | | | |
|----------|--------------|---------------------------------------|--------------------------|-----|-------|--|
| | A-6061-051-A | AV-66 BOARD, COMPLETE | ***** | | | |
| | | | (Ref. No. 1, 000 Series) | | | |
| | | < CAPACITOR > | | | | |
| C201 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C202 | 1-126-934-11 | ELECT | 220uF | 20% | 16V | |
| C203 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C204 | 1-126-924-11 | ELECT | 330uF | 20% | 6.3V | |
| C205 | 1-126-960-11 | ELECT | 1uF | 20% | 50V | |
| C208 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C211 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C214 | 1-163-257-11 | CERAMIC CHIP | 180PF | 5% | 50V | |
| C216 | 1-163-257-11 | CERAMIC CHIP | 180PF | 5% | 50V | |
| C217 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V | |
| C218 | 1-163-135-00 | CERAMIC CHIP | 560PF | 5% | 50V | |
| C219 | 1-163-257-11 | CERAMIC CHIP | 180PF | 5% | 50V | |
| C220 | 1-163-257-11 | CERAMIC CHIP | 180PF | 5% | 50V | |
| C221 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C222 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C223 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C224 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V | |
| C225 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C226 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| C231 | 1-126-947-11 | ELECT | 47uF | 20% | 16V | |
| | | < CONNECTOR > | | | | |
| CN201 | 1-785-695-11 | CONNECTOR, FFC/FPC 13P | | | | |
| CN202 | 1-793-673-11 | CONNECTOR, BOARD TO BOARD 7P | | | | |
| | | < DIODE > | | | | |
| D201 | 8-719-914-43 | DIODE DAN202K-T-146 | | | | |
| D202 | 8-719-988-61 | DIODE 1SS355TE-17 | | | | |
| | | < IC > | | | | |
| IC201 | 8-759-711-59 | IC NJM78L05UA-TE1 | | | | |
| IC202 | 8-759-909-71 | IC BA4558F-E2 | | | | |
| IC203 | 8-749-017-31 | IC GP1FA550TZ | | | | |
| | | < JACK > | | | | |
| J201 | 1-793-446-21 | JACK, PIN 1P (DIGITAL OUTPUT COAXIAL) | | | | |
| J202 | 1-794-793-11 | JACK, PIN 4P (AUDIO OUTPUT) | | | | |
| | | < TRANSISTOR > | | | | |
| Q201 | 8-729-424-02 | TRANSISTOR 2SB709A-QRS-TX | | | | |
| Q202 | 8-729-421-19 | TRANSISTOR UN2213-TX | | | | |
| Q203 | 8-729-230-49 | TRANSISTOR 2SC2712-YG-TE85L | | | | |
| Q204 | 8-729-049-31 | TRANSISTOR 2SB710A-RTX | | | | |
| Q206 | 8-729-027-53 | TRANSISTOR DTC124TKA-T146 | | | | |
| Q208 | 8-729-424-02 | TRANSISTOR 2SB709A-QRS-TX | | | | |
| Q210 | 8-729-046-97 | TRANSISTOR 2SD1938 (F)-T (TX).SO | | | | |
| Q211 | 8-729-046-97 | TRANSISTOR 2SD1938 (F)-T (TX).SO | | | | |
| Q212 | 8-729-230-49 | TRANSISTOR 2SC2712-YG-TE85L | | | | |
| | | < RESISTOR > | | | | |
| R201 | 1-216-065-00 | RES-CHIP | 4.7K | 5% | 1/10W | |
| R202 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R203 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |
| R204 | 1-216-105-00 | RES-CHIP | 220K | 5% | 1/10W | |
| R206 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |

| Ref. No. | Part No. | Description | Remark | | | |
|----------|--------------|-------------|--------|------|-------|--|
| R207 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W | |
| R208 | 1-216-067-00 | METAL CHIP | 5.6K | 5% | 1/10W | |
| R209 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |
| R212 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |
| R213 | 1-216-089-11 | RES-CHIP | 47K | 5% | 1/10W | |
| R216 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |
| R219 | 1-208-798-11 | METAL CHIP | 4.7K | 0.5% | 1/10W | |
| R220 | 1-208-798-11 | METAL CHIP | 4.7K | 0.5% | 1/10W | |
| R221 | 1-208-798-11 | METAL CHIP | 4.7K | 0.5% | 1/10W | |
| R222 | 1-208-798-11 | METAL CHIP | 4.7K | 0.5% | 1/10W | |
| R223 | 1-208-800-11 | METAL CHIP | 5.6K | 0.5% | 1/10W | |
| R224 | 1-208-800-11 | METAL CHIP | 5.6K | 0.5% | 1/10W | |
| R225 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R226 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R227 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R228 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R229 | 1-208-800-11 | METAL CHIP | 5.6K | 0.5% | 1/10W | |
| R230 | 1-208-800-11 | METAL CHIP | 5.6K | 0.5% | 1/10W | |
| R231 | 1-216-089-11 | RES-CHIP | 47K | 5% | 1/10W | |
| R232 | 1-216-089-11 | RES-CHIP | 47K | 5% | 1/10W | |
| R233 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R234 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R235 | 1-216-065-00 | RES-CHIP | 4.7K | 5% | 1/10W | |
| R236 | 1-216-065-00 | RES-CHIP | 4.7K | 5% | 1/10W | |
| R238 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | |
| R239 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | |
| R240 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | |
| R241 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W | |
| R243 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| R244 | 1-216-021-00 | METAL CHIP | 68 | 5% | 1/10W | |
| R246 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | |
| R247 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R248 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R249 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R250 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |

CK-118 BOARD, COMPLETE

(Ref. No. 2, 000 Series)

3-064-172-01 HOLDER (CK-97), SENSOR
 3-960-273-11 SPACER, TOP END

< CAPACITOR >

| | | | | | |
|------|--------------|--------------|-------|-----|-----|
| C001 | 1-128-551-11 | ELECT | 22uF | 20% | 25V |
| C002 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |

< CONNECTOR >

| | | |
|-------|--------------|------------------------------|
| CN001 | 1-569-667-11 | CONNECTOR, BOARD TO BOARD 8P |
| CN002 | 1-764-833-11 | CONNECTOR, BOARD TO BOARD 4P |
| CN003 | 1-815-383-11 | CONNECTOR, FPC/FFC 15P |

< DIODE >

| | | |
|------|--------------|---------------|
| D001 | 8-719-048-26 | DIODE GL528V1 |
|------|--------------|---------------|

< PHOTO INTERRUPTER >

| | | |
|-------|--------------|---------------|
| PH001 | 8-719-052-69 | DIODE RPI-352 |
|-------|--------------|---------------|

< TRANSISTOR >

| | | |
|------|--------------|------------------------------|
| Q001 | 8-729-120-28 | TRANSISTOR 2SC2412K-T-146-QR |
|------|--------------|------------------------------|

| Ref. No. | Part No. | Description | Remark | | |
|--------------------------|--------------|--------------------------------|-------------------|-----|-------|
| Q002 | 8-729-120-28 | TRANSISTOR | 2SC2412K-T-146-QR | | |
| Q003 | 8-729-043-84 | TRANSISTOR | PT380F3 | | |
| Q004 | 8-729-120-28 | TRANSISTOR | 2SC2412K-T-146-QR | | |
| < RESISTOR > | | | | | |
| R002 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R003 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W |
| R004 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W |
| R005 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R006 | 1-216-095-00 | METAL CHIP | 82K | 5% | 1/10W |
| R007 | 1-216-099-00 | METAL CHIP | 120K | 5% | 1/10W |
| CS-58 BOARD, COMPLETE | | | | | |
| ***** | | | | | |
| (Ref. No. 2, 000 Series) | | | | | |
| < CONNECTOR > | | | | | |
| CN261 | 1-779-000-11 | CONNECTOR, FFC/FPC 5P | | | |
| CN262 | 1-573-835-11 | CONNECTOR, BOARD TO BOARD 3P | | | |
| < PHOTO INTERRUPTER > | | | | | |
| PH261 | 8-749-014-69 | IC SPI-238-18 | | | |
| PH262 | 8-749-014-69 | IC SPI-238-18 | | | |
| < RESISTOR > | | | | | |
| R261 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W |
| R262 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W |
| DA-32 BOARD, COMPLETE | | | | | |
| ***** | | | | | |
| (Ref. No. 2, 000 Series) | | | | | |
| < CONNECTOR > | | | | | |
| CN161 | 1-794-832-21 | CONNECTOR, FFC/FPC 4P | | | |
| < PHOTO INTERRUPTER > | | | | | |
| PH161 | 8-749-015-76 | PHOTOINTERRUPTER SPI-235-19-S1 | | | |
| PH162 | 8-749-015-76 | PHOTOINTERRUPTER SPI-235-19-S1 | | | |
| < RESISTOR > | | | | | |
| R161 | 1-216-043-00 | RES-CHIP | 560 | 5% | 1/10W |
| R162 | 1-216-043-00 | RES-CHIP | 560 | 5% | 1/10W |
| DM-105 BOARD, COMPLETE | | | | | |
| ***** | | | | | |
| (Ref. No. 2, 000 Series) | | | | | |
| < CAPACITOR > | | | | | |
| C191 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C192 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| < CONNECTOR > | | | | | |
| CN191 | 1-794-784-21 | CONNECTOR, FFC/FPC 6P | | | |
| * CN192 | 1-779-072-11 | CONNECTOR, FFC/FPC 4P | | | |

| Ref. No. | Part No. | Description | Remark | | |
|--------------------------|--------------|------------------------------------|--------|-----|-------|
| FL-128 BOARD, COMPLETE | | | | | |
| ***** | | | | | |
| (Ref. No. 2, 000 Series) | | | | | |
| < CAPACITOR > | | | | | |
| C401 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C402 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| < CONNECTOR > | | | | | |
| * CN401 | 1-774-697-11 | CONNECTOR, FFC/FPC 18P | | | |
| CN402 | 1-779-347-11 | CONNECTOR, FFC/FPC 3P | | | |
| CN403 | 1-785-730-21 | CONNECTOR, FFC/FPC 9P | | | |
| < DIODE > | | | | | |
| D401 | 8-719-081-68 | DIODE SLI-343DCT32 (FLIP) | | | |
| D402 | 8-719-081-68 | DIODE SLI-343DCT32 (LOAD) | | | |
| D403 | 8-719-081-68 | DIODE SLI-343DCT32 (DIRECT SEARCH) | | | |
| D404 | 8-719-056-06 | DIODE SLR-342DCT32 (EASY PLAY) | | | |
| D405 | 8-719-056-07 | DIODE SLR-342MCT31 (DISC CHANGE) | | | |
| D406 | 8-719-056-06 | DIODE SLR-342DCT32 (JOG) | | | |
| < SHORT > | | | | | |
| JR401 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR402 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR403 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR404 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR405 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR406 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR407 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR408 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR409 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR410 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR411 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR412 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR413 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR414 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR415 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR416 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR417 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR418 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR419 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR420 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR421 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR422 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR423 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR424 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR425 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR426 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR427 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR428 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR429 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR430 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR431 | 1-216-295-11 | SHORT CHIP | 0 | | |
| JR432 | 1-216-295-11 | SHORT CHIP | 0 | | |
| < RESISTOR > | | | | | |
| R401 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R402 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R403 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R404 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark |
|--------------------------|--------------|-----------------------------------|-------|-----|--------|
| R405 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R406 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W |
| R407 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R408 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W |
| R409 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R410 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R411 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W |
| R412 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R413 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R414 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R415 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R417 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R418 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W |
| R419 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R420 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R421 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R422 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W |
| R423 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R424 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R425 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W |
| R426 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R427 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| < SWITCH > | | | | | |
| S401 | 1-771-349-21 | SWITCH, KEYBOARD (TOP MENU) | | | |
| S402 | 1-771-349-21 | SWITCH, KEYBOARD (DISPLAY) | | | |
| S403 | 1-771-349-21 | SWITCH, KEYBOARD (MENU) | | | |
| S404 | 1-771-349-21 | SWITCH, KEYBOARD (↩ RETURN) | | | |
| S405 | 1-771-349-21 | SWITCH, KEYBOARD (LOAD) | | | |
| S406 | 1-771-349-21 | SWITCH, KEYBOARD (REPEAT) | | | |
| S407 | 1-771-349-21 | SWITCH, KEYBOARD (TIME/TEXT) | | | |
| S408 | 1-771-349-21 | SWITCH, KEYBOARD (SHUFFLE) | | | |
| S409 | 1-771-349-21 | SWITCH, KEYBOARD (ONE/ALL DISC) | | | |
| S410 | 1-771-349-21 | SWITCH, KEYBOARD (FLIP) | | | |
| S411 | 1-771-349-21 | SWITCH, KEYBOARD (DISC CHANGE) | | | |
| S412 | 1-771-349-21 | SWITCH, KEYBOARD (DIRECT SEARCH) | | | |
| S414 | 1-771-349-21 | SWITCH, KEYBOARD (▷) | | | |
| S415 | 1-771-349-21 | SWITCH, KEYBOARD (■) | | | |
| S416 | 1-771-349-21 | SWITCH, KEYBOARD (■) | | | |
| S417 | 1-771-349-21 | SWITCH, KEYBOARD (JOG) | | | |
| S418 | 1-475-235-21 | ENCODER, ROTARY (PREV ◀◀ ▶▶ NEXT) | | | |
| S419 | 1-771-349-21 | SWITCH, KEYBOARD (OPEN/CLOSE) | | | |
| S420 | 1-771-349-21 | SWITCH, KEYBOARD (PROGRAM) | | | |
| S421 | 1-771-349-21 | SWITCH, KEYBOARD (EASY PLAY) | | | |
| | | | | | |
| A-6061-059-A | | FR-189 BOARD, COMPLETE | | | |
| ***** | | | | | |
| (Ref. No. 1, 000 Series) | | | | | |
| < BUZZER > | | | | | |
| BZ101 | 1-544-886-11 | BUZZER | | | |
| < CAPACITOR > | | | | | |
| C101 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C102 | 1-126-395-11 | ELECT | 22uF | 20% | 16V |
| C103 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C105 | 1-128-405-11 | ELECT CHIP | 22uF | 20% | 50V |
| C106 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C107 | 1-126-204-11 | ELECT CHIP | 47uF | 20% | 16V |

| Ref. No. | Part No. | Description | | | Remark |
|------------------|--------------|--------------------------------------|---------|-----|-------------|
| C108 | 1-137-150-11 | FILM | 0.01uF | 5% | 100V |
| C109 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C111 | 1-164-489-11 | CERAMIC CHIP | 0.22uF | 10% | 16V |
| C112 | 1-115-339-11 | CERAMIC CHIP | 0.1uF | 10% | 50V |
| C113 | 1-115-339-11 | CERAMIC CHIP | 0.1uF | 10% | 50V |
| C114 | 1-137-672-21 | ELECT (BLOCK) | 47uF | 20% | 50V |
| C115 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C116 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C117 | 1-128-405-11 | ELECT CHIP | 22uF | 20% | 50V |
| C118 | 1-115-339-11 | CERAMIC CHIP | 0.1uF | 10% | 50V |
| C119 | 1-115-339-11 | CERAMIC CHIP | 0.1uF | 10% | 50V |
| C120 | 1-115-339-11 | CERAMIC CHIP | 0.1uF | 10% | 50V |
| C121 | 1-163-021-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C122 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C124 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C125 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C132 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C134 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C135 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C136 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| < CONNECTOR > | | | | | |
| CN102 | 1-785-699-21 | CONNECTOR, FFC/FPC 18P | | | |
| CN103 | 1-794-507-21 | CONNECTOR, FFC/FPC 21P | | | |
| < DIODE > | | | | | |
| D101 | 8-719-067-82 | DIODE SML-020MLTT86 (I/⬇) | | | |
| D102 | 8-719-056-06 | DIODE SLR-342DCT32 (PICT MODE AMBER) | | | |
| D103 | 8-719-056-06 | DIODE SLR-342DCT32 (SURROUND AMBER) | | | |
| D104 | 8-719-041-97 | DIODE MA113- (TX) | | | |
| D105 | 8-719-041-97 | DIODE MA113- (TX) | | | |
| D106 | 8-719-041-97 | DIODE MA113- (TX) | | | |
| D107 | 8-719-041-97 | DIODE MA113- (TX) | | | |
| D108 | 8-719-914-43 | DIODE DAN202K-T-146 | | | |
| D109 | 8-719-042-70 | DIODE MA8300-L-TX | | | |
| D110 | 8-719-422-67 | DIODE MA8062-H-TX | | | |
| D112 | 8-719-067-59 | DIODE MAZ9120D0LS0-TX/L | | | |
| D113 | 8-719-067-59 | DIODE MAZ9120D0LS0-TX/L | | | |
| D114 | 8-719-067-59 | DIODE MAZ9120D0LS0-TX/L | | | |
| < FERRITE BEAD > | | | | | |
| FB101 | 1-414-553-11 | FERRITE | 0uH | | |
| FB102 | 1-414-553-11 | FERRITE | 0uH | | |
| FB103 | 1-469-324-21 | FERRITE | 0uH | | |
| < IC > | | | | | |
| IC101 | 6-600-132-01 | IC GP1UM27SXX0F | | | |
| IC102 | 8-759-525-43 | IC TC74HCT08AF (EL) | | | |
| IC103 | 6-701-119-01 | IC BU2090F-E2 | | | |
| IC104 | 8-759-710-82 | IC NJM2406F-TE2 | | | |
| IC106 | 6-801-921-01 | IC TMP86CM74AFG-4F87 | | | |
| IC107 | 6-702-525-01 | IC BD4740G-TR | | | |
| < JACK > | | | | | |
| J101 | 1-573-034-11 | CONNECTOR, MULTIPLE (SMALL TYPE) | | | (KEY BOARD) |
| < COIL > | | | | | |
| L101 | 1-400-096-21 | INDUCTOR | 47uH | | |

| Ref. No. | Part No. | Description | | | | Remark | Ref. No. | Part No. | Description | | | | Remark | |
|----------|--------------|--------------------------------|-----------------|----|-------|--------|--------------------------|--------------|---------------------------------|-------|-----|-------|--------|--|
| ND101 | 1-518-832-11 | < FLUORESCENT INDICATOR TUBE > | | | | | R152 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W | | |
| | | | | | | | R153 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | |
| | | | | | | | R154 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| | | | | | | | R155 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| | | | | | | | R156 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | | |
| | | | | | | | R157 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | | |
| | | | | | | | R158 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| | | | | | | | R159 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| | | | | | | | R160 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | | |
| | | | | | | | R161 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | | |
| Q101 | 8-729-421-19 | TRANSISTOR | UN2213-TX | | | | R162 | 1-216-093-11 | RES-CHIP | 68K | 5% | 1/10W | | |
| Q102 | 8-729-421-19 | TRANSISTOR | UN2213-TX | | | | R163 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | | |
| Q103 | 8-729-808-01 | TRANSISTOR | 2SD1622-S-TD | | | | R164 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | | |
| Q104 | 8-729-808-01 | TRANSISTOR | 2SD1622-S-TD | | | | R165 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| Q105 | 8-729-903-46 | TRANSISTOR | 2SB1132-T100-QR | | | | R166 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | |
| Q106 | 1-801-806-11 | TRANSISTOR | DTC144EKA-T146 | | | | R167 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | |
| Q107 | 8-729-804-41 | TRANSISTOR | 2SB1122-ST-TD | | | | R168 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | |
| Q108 | 8-729-424-02 | TRANSISTOR | 2SB709A-QRS-TX | | | | R169 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | | |
| Q109 | 8-729-424-18 | TRANSISTOR | UN2113-TX | | | | < SWITCH > | | | | | | | |
| Q110 | 8-729-808-02 | TRANSISTOR | 2SD1622-T-TD | | | | S101 | 1-771-349-21 | SWITCH, KEYBOARD (I/O) | | | | | |
| | | | | | | | S103 | 1-771-349-21 | SWITCH, KEYBOARD (FILE) | | | | | |
| | | | | | | | S104 | 1-771-349-21 | SWITCH, KEYBOARD (PICTURE MODE) | | | | | |
| | | | | | | | S105 | 1-771-349-21 | SWITCH, KEYBOARD (EDIT) | | | | | |
| | | | | | | | S106 | 1-771-349-21 | SWITCH, KEYBOARD (SURROUND) | | | | | |
| R102 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | S107 | 1-771-349-21 | SWITCH, KEYBOARD (SORT) | | | | | |
| R103 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | | S108 | 1-771-349-21 | SWITCH, KEYBOARD (FOLDER) | | | | | |
| R104 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W | | < TRANSFORMER > | | | | | | | |
| R105 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | | T101 | 1-437-887-11 | TRANSFORMER, DC-DC CONVERTER | | | | | |
| R106 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | | < THERMISTOR > | | | | | | | |
| R107 | 1-216-017-00 | RES-CHIP | 47 | 5% | 1/10W | | TH101 | 1-533-817-21 | THERMISTOR | | | | | |
| R108 | 1-216-097-11 | RES-CHIP | 100K | 5% | 1/10W | | < VIBRATOR > | | | | | | | |
| R111 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | | X101 | 1-795-661-11 | VIBRATOR, CERAMIC (16MHz) | | | | | |
| R114 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | | LC-78 BOARD, COMPLETE | | | | | | | |
| R115 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | ***** | | | | | | | |
| R116 | 1-216-061-00 | RES-CHIP | 3.3K | 5% | 1/10W | | (Ref. No. 2, 000 Series) | | | | | | | |
| R117 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W | | < CAPACITOR > | | | | | | | |
| R118 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | | C201 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V | | |
| R119 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | C202 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V | | |
| R122 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | C203 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V | | |
| R123 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | | C204 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V | | |
| R124 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W | | | | | | | | | |
| R125 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | | | | | | | | | |
| R126 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R127 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W | | | | | | | | | |
| R128 | 1-216-013-00 | METAL CHIP | 33 | 5% | 1/10W | | | | | | | | | |
| R129 | 1-216-027-00 | METAL CHIP | 120 | 5% | 1/10W | | | | | | | | | |
| R131 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R132 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W | | | | | | | | | |
| R134 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R135 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R136 | 1-216-065-00 | RES-CHIP | 4.7K | 5% | 1/10W | | | | | | | | | |
| R137 | 1-216-065-00 | RES-CHIP | 4.7K | 5% | 1/10W | | | | | | | | | |
| R138 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W | | | | | | | | | |
| R139 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W | | | | | | | | | |
| R140 | 1-216-025-11 | RES-CHIP | 100 | 5% | 1/10W | | | | | | | | | |
| R141 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R142 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R143 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R144 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R145 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R146 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R147 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W | | | | | | | | | |
| R148 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W | | | | | | | | | |
| R149 | 1-216-295-11 | SHORT CHIP | 0 | | | | | | | | | | | |
| R150 | 1-216-063-00 | RES-CHIP | 3.9K | 5% | 1/10W | | | | | | | | | |
| R151 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W | | | | | | | | | |

LC-78**LL-12****LR-17****LS-62****MB-107**

| Ref. No. | Part No. | Description | Remark | | | |
|-------------------------------------|--------------|------------------------------|--------|-----|-------|--|
| < CONNECTOR > | | | | | | |
| CN201 | 1-764-832-11 | CONNECTOR, BOARD TO BOARD 4P | | | | |
| LL-12 BOARD, COMPLETE | | | | | | |
| ***** | | | | | | |
| (Ref. No. 2, 000 Series) | | | | | | |
| CN241 | 1-573-817-11 | CONNECTOR, BOARD TO BOARD 3P | | | | |
| < DIODE > | | | | | | |
| D241 | 6-500-176-01 | DIODE EB3804X-TP-J555K | | | | |
| < RESISTOR > | | | | | | |
| R241 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| LR-17 BOARD, COMPLETE | | | | | | |
| ***** | | | | | | |
| (Ref. No. 2, 000 Series) | | | | | | |
| < CONNECTOR > | | | | | | |
| CN281 | 1-573-817-11 | CONNECTOR, BOARD TO BOARD 3P | | | | |
| < DIODE > | | | | | | |
| D281 | 6-500-176-01 | DIODE EB3804X-TP-J555K | | | | |
| < RESISTOR > | | | | | | |
| R281 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| LS-62 BOARD, COMPLETE | | | | | | |
| ***** | | | | | | |
| (Ref. No. 2, 000 Series) | | | | | | |
| < CONNECTOR > | | | | | | |
| CN221 | 1-569-670-11 | CONNECTOR, BOARD TO BOARD 8P | | | | |
| CN222 | 1-573-835-11 | CONNECTOR, BOARD TO BOARD 3P | | | | |
| CN223 | 1-779-000-11 | CONNECTOR, FFC/FPC 5P | | | | |
| < PHOTO INTERRUPTER > | | | | | | |
| PH221 | 8-749-014-69 | IC SPI-238-18 | | | | |
| PH222 | 8-749-014-69 | IC SPI-238-18 | | | | |
| < RESISTOR > | | | | | | |
| R221 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W | |
| R222 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W | |
| A-6061-049-A MB-107 BOARD, COMPLETE | | | | | | |
| ***** | | | | | | |
| (Ref. No. 3, 000 Series) | | | | | | |
| < CAPACITOR > | | | | | | |
| C102 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C103 | 1-126-209-11 | ELECT CHIP | 100uF | 20% | 4V | |
| C104 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C105 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C106 | 1-162-916-11 | CERAMIC CHIP | 12PF | 5% | 50V | |
| C107 | 1-162-919-11 | CERAMIC CHIP | 22PF | 5% | 50V | |
| C108 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |

| Ref. No. | Part No. | Description | Remark | | | |
|----------|--------------|-------------------------------|--------|--|--|--|
| C109 | 1-126-209-11 | ELECT CHIP 100uF 20% 4V | | | | |
| C111 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C113 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C115 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C118 | 1-165-176-11 | CERAMIC CHIP 0.047uF 10% 16V | | | | |
| C120 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C121 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C122 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C123 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C124 | 1-126-206-11 | ELECT CHIP 100uF 20% 6.3V | | | | |
| C125 | 1-126-607-11 | ELECT CHIP 47uF 20% 4V | | | | |
| C126 | 1-137-765-21 | ELECT 47uF 20% 16V | | | | |
| C127 | 1-126-246-11 | ELECT CHIP 220uF 20% 4V | | | | |
| C128 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C130 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C201 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C202 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C210 | 1-162-966-11 | CERAMIC CHIP 0.0022uF 10% 50V | | | | |
| C211 | 1-162-966-11 | CERAMIC CHIP 0.0022uF 10% 50V | | | | |
| C212 | 1-162-966-11 | CERAMIC CHIP 0.0022uF 10% 50V | | | | |
| C213 | 1-162-966-11 | CERAMIC CHIP 0.0022uF 10% 50V | | | | |
| C214 | 1-164-245-11 | CERAMIC CHIP 0.015uF 10% 25V | | | | |
| C215 | 1-162-927-11 | CERAMIC CHIP 100PF 5% 50V | | | | |
| C216 | 1-164-230-11 | CERAMIC CHIP 220PF 5% 50V | | | | |
| C218 | 1-162-965-11 | CERAMIC CHIP 0.0015uF 10% 50V | | | | |
| C219 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C220 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C221 | 1-124-779-00 | ELECT CHIP 10uF 20% 16V | | | | |
| C225 | 1-162-927-11 | CERAMIC CHIP 100PF 5% 50V | | | | |
| C226 | 1-164-230-11 | CERAMIC CHIP 220PF 5% 50V | | | | |
| C228 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V | | | | |
| C229 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V | | | | |
| C230 | 1-162-968-11 | CERAMIC CHIP 0.0047uF 10% 50V | | | | |
| C232 | 1-162-968-11 | CERAMIC CHIP 0.0047uF 10% 50V | | | | |
| C233 | 1-162-968-11 | CERAMIC CHIP 0.0047uF 10% 50V | | | | |
| C234 | 1-165-708-11 | ELECT 47uF 20% 6.3V | | | | |
| C235 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C236 | 1-164-739-11 | CERAMIC CHIP 560PF 5% 50V | | | | |
| C238 | 1-124-779-00 | ELECT CHIP 10uF 20% 16V | | | | |
| C240 | 1-164-677-11 | CERAMIC CHIP 0.033uF 10% 16V | | | | |
| C241 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C242 | 1-165-708-11 | ELECT 47uF 20% 6.3V | | | | |
| C243 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C244 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C245 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C246 | 1-164-677-11 | CERAMIC CHIP 0.033uF 10% 16V | | | | |
| C247 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C248 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C249 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C250 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C251 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C252 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C253 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V | | | | |
| C254 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C255 | 1-107-826-11 | CERAMIC CHIP 0.1uF 10% 16V | | | | |
| C256 | 1-165-176-11 | CERAMIC CHIP 0.047uF 10% 16V | | | | |
| C257 | 1-165-176-11 | CERAMIC CHIP 0.047uF 10% 16V | | | | |
| C258 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |
| C259 | 1-162-964-11 | CERAMIC CHIP 0.001uF 10% 50V | | | | |
| C260 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% 25V | | | | |

| Ref. No. | Part No. | Description | | | | Remark | Ref. No. | Part No. | Description | | | | Remark |
|----------|--------------|--------------|----------|-----|------|--------|----------|--------------|--------------|----------|-----|------|--------|
| C261 | 1-162-959-11 | CERAMIC CHIP | 330PF | 5% | 50V | | C426 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C262 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C427 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C263 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V | | C429 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C264 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C430 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C265 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C431 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C266 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C432 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C270 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C433 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C271 | 1-137-765-21 | ELECT | 47uF | 20% | 16V | | C436 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C303 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C437 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C304 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C438 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C305 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | | C439 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C308 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V | | C440 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C309 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C441 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C310 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V | | C442 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C311 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C443 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C312 | 1-110-563-11 | CERAMIC CHIP | 0.068uF | 10% | 16V | | C448 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C313 | 1-164-677-11 | CERAMIC CHIP | 0.033uF | 10% | 16V | | C450 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C314 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C537 | 1-125-891-11 | CERAMIC CHIP | 0.47uF | 10% | 10V | |
| C315 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C538 | 1-165-492-21 | ELECT | 100uF | 20% | 10V | |
| C316 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | | C539 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | |
| C317 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C601 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C318 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | | C602 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C319 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C603 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | |
| C320 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | | C604 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C321 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C605 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C322 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C606 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C323 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C607 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C324 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C608 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C325 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C609 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C326 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C610 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C327 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C611 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C328 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C612 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C329 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C613 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C330 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V | | C614 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C332 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C615 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C333 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C616 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C334 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C617 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C335 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C618 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | |
| C337 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C619 | 1-126-607-11 | ELECT CHIP | 47uF | 20% | 4V | |
| C338 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C620 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C339 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C621 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C340 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C622 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C343 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C623 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C344 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C624 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C401 | 1-126-193-11 | ELECT | 1uF | 20% | 50V | | C625 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C404 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C626 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V | |
| C405 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V | | C627 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C407 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V | | C628 | 1-164-315-11 | CERAMIC CHIP | 470PF | 5% | 50V | |
| C408 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C629 | 1-164-315-11 | CERAMIC CHIP | 470PF | 5% | 50V | |
| C410 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C630 | 1-164-173-11 | CERAMIC CHIP | 0.0039uF | 10% | 50V | |
| C411 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C631 | 1-127-956-21 | FILM CHIP | 0.1uF | 5% | 16V | |
| C413 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C632 | 1-127-956-21 | FILM CHIP | 0.1uF | 5% | 16V | |
| C414 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C633 | 1-164-733-11 | CERAMIC CHIP | 820PF | 10% | 50V | |
| C416 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C634 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C417 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C635 | 1-126-206-11 | ELECT CHIP | 100uF | 20% | 6.3V | |
| C418 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C636 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C419 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C637 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | |
| C420 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | | C638 | 1-115-467-11 | CERAMIC CHIP | 0.22uF | 10% | 10V | |
| C423 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C639 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |
| C424 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V | | C640 | 1-107-826-11 | CERAMIC CHIP | 0.1uF | 10% | 16V | |

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| Ref. No. | Part No. | Description | Remark |
|------------------|--------------|-------------------------------|--------|
| C701 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C702 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C703 | 1-162-962-11 | CERAMIC CHIP 470PF 10% | 50V |
| C704 | 1-162-962-11 | CERAMIC CHIP 470PF 10% | 50V |
| C705 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C706 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C707 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C708 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C709 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C710 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C711 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C712 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C713 | 1-162-970-11 | CERAMIC CHIP 0.01uF 10% | 25V |
| C714 | 1-126-607-11 | ELECT CHIP 47uF 20% | 4V |
| < CONNECTOR > | | | |
| * CN101 | 1-770-468-21 | PIN, CONNECTOR (PC BOARD) 10P | |
| * CN104 | 1-770-470-21 | PIN, CONNECTOR (PC BOARD) 6P | |
| CN203 | 1-815-507-21 | CONNECTOR, FFC/FPC 26P | |
| CN501 | 1-778-274-11 | CONNECTOR, FFC/FPC 13P | |
| CN601 | 1-774-767-11 | CONNECTOR, FFC/FPC 15P | |
| < DIODE > | | | |
| D501 | 8-719-914-44 | DIODE DAP202K-T-146 | |
| < FERRITE BEAD > | | | |
| FB104 | 1-469-324-21 | FERRITE 0uH | |
| FB105 | 1-469-324-21 | FERRITE 0uH | |
| FB106 | 1-469-324-21 | FERRITE 0uH | |
| FB107 | 1-469-324-21 | FERRITE 0uH | |
| FB108 | 1-469-324-21 | FERRITE 0uH | |
| FB109 | 1-469-324-21 | FERRITE 0uH | |
| FB110 | 1-469-324-21 | FERRITE 0uH | |
| FB111 | 1-469-324-21 | FERRITE 0uH | |
| FB112 | 1-469-784-11 | FERRITE 0uH | |
| < FILTER > | | | |
| FL101 | 1-234-177-21 | FERRITE 0uH | |
| FL102 | 1-234-177-21 | FERRITE 0uH | |
| FL103 | 1-234-177-21 | FERRITE 0uH | |
| FL104 | 1-234-177-21 | FERRITE 0uH | |
| FL105 | 1-234-177-21 | FERRITE 0uH | |
| FL106 | 1-234-177-21 | FERRITE 0uH | |
| FL107 | 1-233-893-21 | FILTER, CHIP EMI | |
| FL108 | 1-234-177-21 | FERRITE 0uH | |
| FL109 | 1-234-177-21 | FERRITE 0uH | |
| FL201 | 1-234-177-21 | FERRITE 0uH | |
| FL402 | 1-234-177-21 | FERRITE 0uH | |
| FL403 | 1-234-177-21 | FERRITE 0uH | |
| FL404 | 1-234-177-21 | FERRITE 0uH | |
| FL701 | 1-234-177-21 | FERRITE 0uH | |
| < IC > | | | |
| IC101 | 8-759-640-40 | IC BR24C04F-WE2 | |
| IC103 | 6-701-879-01 | IC CY24233ZCT | |
| IC104 | 6-701-837-01 | IC MB91307RPFV-G-BND-E1 | |
| IC107 | | IC ROM | |
| (IC106) | | | |
| IC108 | 6-701-874-01 | IC IDT71V016SA15PH8 (SCD2994) | |
| IC201 | 6-701-700-01 | IC SP3728ACB | |

| Ref. No. | Part No. | Description | Remark |
|----------------|--------------|----------------------------|--------|
| IC202 | 6-701-878-01 | IC FAN8034L | |
| IC301 | 6-701-876-01 | IC CXD9703R | |
| IC302 | 6-702-302-01 | IC TK11133CSCL-G | |
| IC303 | 8-759-643-10 | IC GM71V18160CT-6TR | |
| IC401 | 6-702-300-01 | IC TK11118CSCL-G | |
| IC403 | 8-752-416-45 | IC CXD1935Q | |
| IC404 | 8-759-663-74 | IC HY57V161610DTC-7TR | |
| IC405 | 8-759-663-74 | IC HY57V161610DTC-7TR | |
| IC503 | 6-702-630-01 | IC AK4382AVTN-E2 | |
| IC601 | 6-702-301-01 | IC TK11125CSCL-G | |
| IC602 | 6-701-814-01 | IC CXD9698R | |
| IC603 | 8-759-663-74 | IC HY57V161610DTC-7TR | |
| IC604 | 6-701-079-01 | IC ADV7300AKST | |
| IC605 | 6-702-301-01 | IC TK11125CSCL-G | |
| IC701 | 6-702-287-01 | IC CXD9705R | |
| IC702 | 6-702-439-01 | IC K9F6408U0C-TCBOT | |
| < COIL > | | | |
| L101 | 1-414-410-21 | INDUCTOR 10uH | |
| L201 | 1-412-031-11 | INDUCTOR CHIP 47uH | |
| L202 | 1-412-031-11 | INDUCTOR CHIP 47uH | |
| < TRANSISTOR > | | | |
| Q201 | 8-729-903-46 | TRANSISTOR 2SB1132-T100-QR | |
| Q202 | 8-729-903-46 | TRANSISTOR 2SB1132-T100-QR | |
| < RESISTOR > | | | |
| R021 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |
| R022 | 1-216-864-11 | SHORT CHIP 0 | |
| R091 | 1-414-228-11 | FERRITE 0uH | |
| R093 | 1-414-228-11 | FERRITE 0uH | |
| R095 | 1-414-228-11 | FERRITE 0uH | |
| R096 | 1-414-228-11 | FERRITE 0uH | |
| R097 | 1-414-228-11 | FERRITE 0uH | |
| R098 | 1-216-864-11 | SHORT CHIP 0 | |
| R099 | 1-414-228-11 | FERRITE 0uH | |
| R101 | 1-216-864-11 | SHORT CHIP 0 | |
| R102 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |
| R103 | 1-216-864-11 | SHORT CHIP 0 | |
| R104 | 1-216-789-11 | METAL CHIP 2.2 5% | 1/10W |
| R105 | 1-216-864-11 | SHORT CHIP 0 | |
| R106 | 1-216-821-11 | METAL CHIP 1K 5% | 1/10W |
| R107 | 1-216-837-11 | METAL CHIP 22K 5% | 1/10W |
| R108 | 1-216-823-11 | METAL CHIP 1.5K 5% | 1/10W |
| R109 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R111 | 1-216-821-11 | METAL CHIP 1K 5% | 1/10W |
| R112 | 1-216-845-11 | METAL CHIP 100K 5% | 1/10W |
| R113 | 1-216-845-11 | METAL CHIP 100K 5% | 1/10W |
| R114 | 1-216-821-11 | METAL CHIP 1K 5% | 1/10W |
| R115 | 1-216-821-11 | METAL CHIP 1K 5% | 1/10W |
| R116 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R117 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |
| R118 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |
| R119 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R120 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R121 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R122 | 1-216-797-11 | METAL CHIP 10 5% | 1/10W |
| R123 | 1-216-827-11 | METAL CHIP 3.3K 5% | 1/10W |
| R125 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |
| R126 | 1-216-833-11 | METAL CHIP 10K 5% | 1/10W |

| Ref. No. | Part No. | Description | | | Remark | Ref. No. | Part No. | Description | | | Remark |
|----------|--------------|-------------|------|----|--------|----------|--------------|-------------|------|------|--------|
| R133 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R231 | 1-216-855-11 | METAL CHIP | 680K | 5% | 1/10W |
| R138 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R232 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R139 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R233 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/10W |
| R141 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/10W | R234 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/10W |
| R144 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/10W | R235 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R148 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R236 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/10W |
| R149 | 1-414-228-11 | FERRITE | 0uH | | | R238 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R150 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/10W | R239 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R151 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/10W | R240 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R152 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R241 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R153 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/10W | R242 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/10W |
| R154 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R243 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/10W |
| R155 | 1-216-864-11 | SHORT CHIP | 0 | | | R244 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R156 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/10W | R245 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/10W |
| R157 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R246 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R159 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R248 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/10W |
| R163 | 1-216-864-11 | SHORT CHIP | 0 | | | R249 | 1-216-803-11 | METAL CHIP | 33 | 5% | 1/10W |
| R165 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R250 | 1-218-895-11 | METAL CHIP | 100K | 0.5% | 1/10W |
| R166 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W | R251 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/10W |
| R167 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R252 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W |
| R168 | 1-216-864-11 | SHORT CHIP | 0 | | | R253 | 1-218-889-11 | METAL CHIP | 56K | 0.5% | 1/10W |
| R170 | 1-414-226-21 | FERRITE | 0uH | | | R254 | 1-218-895-11 | METAL CHIP | 100K | 0.5% | 1/10W |
| R171 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R255 | 1-218-889-11 | METAL CHIP | 56K | 0.5% | 1/10W |
| R172 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W | R256 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R173 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/10W | R259 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R176 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R260 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/10W |
| R177 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R261 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R178 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R262 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/10W |
| R179 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R263 | 1-216-861-11 | METAL CHIP | 2.2M | 5% | 1/10W |
| R180 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R264 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/10W |
| R181 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | R265 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/10W |
| R182 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | R269 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R183 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R301 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R184 | 1-216-864-11 | SHORT CHIP | 0 | | | R302 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R187 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R310 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R188 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R311 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R189 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R312 | 1-218-831-11 | METAL CHIP | 220 | 0.5% | 1/10W |
| R190 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R313 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/10W |
| R192 | 1-216-864-11 | SHORT CHIP | 0 | | | R314 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/10W |
| R193 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R315 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/10W |
| R194 | 1-216-864-11 | SHORT CHIP | 0 | | | R316 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/10W |
| R195 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R317 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R197 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R318 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/10W |
| R198 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R319 | 1-218-871-11 | METAL CHIP | 10K | 0.5% | 1/10W |
| R206 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/10W | R320 | 1-218-883-11 | METAL CHIP | 33K | 0.5% | 1/10W |
| R210 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/10W | R321 | 1-218-879-11 | METAL CHIP | 22K | 0.5% | 1/10W |
| R211 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R322 | 1-218-847-11 | METAL CHIP | 1K | 0.5% | 1/10W |
| R212 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R323 | 1-218-855-11 | METAL CHIP | 2.2K | 0.5% | 1/10W |
| R218 | 1-216-846-11 | METAL CHIP | 120K | 5% | 1/10W | R324 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R219 | 1-216-846-11 | METAL CHIP | 120K | 5% | 1/10W | R325 | 1-218-867-11 | RES-CHIP | 6.8K | 5% | 1/10W |
| R220 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/10W | R326 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R221 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/10W | R327 | 1-218-871-11 | METAL CHIP | 10K | 0.5% | 1/10W |
| R222 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/10W | R328 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/10W |
| R223 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/10W | R329 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/10W |
| R224 | 1-216-850-11 | METAL CHIP | 270K | 5% | 1/10W | R330 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/10W |
| R225 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R331 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/10W |
| R226 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/10W | R332 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/10W |
| R227 | 1-216-846-11 | METAL CHIP | 120K | 5% | 1/10W | R333 | 1-216-847-11 | METAL CHIP | 150K | 5% | 1/10W |
| R229 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R334 | 1-218-853-11 | METAL CHIP | 1.8K | 0.5% | 1/10W |
| R230 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/10W | R335 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/10W |

| Ref. No. | Part No. | Description | Remark | | | Ref. No. | Part No. | Description | Remark | | |
|----------|--------------|-------------|--------|----|-------|-------------------------------|--------------|---------------------------------------|--------|------|-------|
| R349 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R665 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R351 | 1-216-295-11 | SHORT CHIP | 0 | | | R674 | 1-216-819-11 | METAL CHIP | 680 | 5% | 1/10W |
| R352 | 1-216-295-11 | SHORT CHIP | 0 | | | R675 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R358 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R676 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R359 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R677 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R360 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R678 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R364 | 1-216-864-11 | SHORT CHIP | 0 | | | R679 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R366 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | R680 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R402 | 1-216-295-11 | SHORT CHIP | 0 | | | R681 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R403 | 1-216-864-11 | SHORT CHIP | 0 | | | R682 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R407 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R683 | 1-218-834-11 | METAL CHIP | 300 | 0.5% | 1/10W |
| R414 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R697 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R416 | 1-218-867-11 | RES-CHIP | 6.8K | 5% | 1/10W | R698 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R418 | 1-216-822-11 | METAL CHIP | 1.2K | 5% | 1/10W | R703 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R419 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/10W | R704 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R426 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R705 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W |
| R430 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R706 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R432 | 1-216-864-11 | SHORT CHIP | 0 | | | R712 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R434 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/10W | R713 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R509 | 1-216-864-11 | SHORT CHIP | 0 | | | R714 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/10W |
| R560 | 1-414-226-21 | FERRITE | 0uH | | | R716 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/10W |
| R569 | 1-216-864-11 | SHORT CHIP | 0 | | | R717 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/10W |
| R570 | 1-216-864-11 | SHORT CHIP | 0 | | | R718 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/10W |
| R571 | 1-216-864-11 | SHORT CHIP | 0 | | | R719 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/10W |
| R572 | 1-216-864-11 | SHORT CHIP | 0 | | | R720 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/10W |
| R573 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R721 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R587 | 1-216-864-11 | SHORT CHIP | 0 | | | R722 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/10W |
| R590 | 1-216-797-11 | METAL CHIP | 10 | 5% | 1/10W | R725 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R601 | 1-216-864-11 | SHORT CHIP | 0 | | | R730 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R603 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R731 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R605 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W | R732 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R609 | 1-216-864-11 | SHORT CHIP | 0 | | | R733 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R612 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R734 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R613 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | R735 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/10W |
| R614 | 1-216-864-11 | SHORT CHIP | 0 | | | R736 | 1-216-864-11 | SHORT CHIP | 0 | | |
| R615 | 1-218-285-11 | RES-CHIP | 75 | 5% | 1/10W | R738 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/10W |
| R617 | 1-218-292-11 | RES-CHIP | 20K | 5% | 1/10W | < COMPOSITION CIRCUIT BLOCK > | | | | | |
| R618 | 1-216-864-11 | SHORT CHIP | 0 | | | * RB102 | 1-233-270-11 | NETWORK, RES (8 GANG) | 10K | | |
| R619 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB103 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R620 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB104 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R621 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB105 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R622 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB106 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R623 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB107 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R624 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB108 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R625 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB109 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R626 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB110 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R627 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RB111 | 1-233-576-11 | RES, CHIP NETWORK | 100 | | |
| R628 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | < VARIABLE RESISTOR > | | | | | |
| R629 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RV601 | 1-223-583-11 | RES, ADJ, CARBON 1K (VIDEO LEVEL ADJ) | | | |
| R630 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | RV602 | 1-223-583-11 | RES, ADJ, CARBON 1K (COMP-Y) | | | |
| R631 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | < VIBRATOR > | | | | | |
| R632 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | X101 | 1-795-174-11 | VIBRATOR, CERAMIC (16.5MHz) | | | |
| R633 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | X102 | 1-795-540-21 | VIBRATOR, CRYSTAL (27MHz) | | | |
| R634 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/10W | | | | | | |
| R639 | 1-216-864-11 | SHORT CHIP | 0 | | | | | | | | |
| R640 | 1-216-789-11 | METAL CHIP | 2.2 | 5% | 1/10W | | | | | | |
| R659 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | | | | | | |
| R661 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/10W | | | | | | |
| R663 | 1-216-864-11 | SHORT CHIP | 0 | | | | | | | | |
| R664 | 1-216-864-11 | SHORT CHIP | 0 | | | | | | | | |

| Ref. No. | Part No. | Description | Remark | Ref. No. | Part No. | Description | Remark |
|----------|--------------|---|--------|----------|--------------|--|--------|
| | | SW-374 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series) | | | A-6061-053-A | VD-33 BOARD, COMPLETE ***** (Ref. No. 4, 000 Series) | |
| | | < CONNECTOR > | | | | < CAPACITOR > | |
| CN301 | 1-779-347-11 | CONNECTOR, FFC/FPC 3P | | C101 | 1-163-021-11 | CERAMIC CHIP 0.01uF 10% 50V | |
| | | < SWITCH > | | C102 | 1-126-947-11 | ELECT 47uF 20% 16V | |
| S301 | 1-771-349-21 | SWITCH, KEYBOARD (≡ EJECT) | | C103 | 1-126-947-11 | ELECT 47uF 20% 16V | |
| | | TK-63 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series) | | C104 | 1-126-947-11 | ELECT 47uF 20% 16V | |
| | | < CAPACITOR > | | C105 | 1-104-760-11 | CERAMIC CHIP 0.047uF 10% 50V | |
| C006 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | C106 | 1-126-947-11 | ELECT 47uF 20% 16V | |
| | | < CONNECTOR > | | C107 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | |
| CN001 | 1-766-356-21 | CONNECTOR, FFC/FPC 26P | | C108 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | |
| CN002 | 1-815-507-21 | CONNECTOR, FFC/FPC 26P | | C109 | 1-163-009-11 | CERAMIC CHIP 0.001uF 10% 50V | |
| CN003 | 1-784-683-11 | CONNECTOR, FFC/FPC 9P | | C110 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | |
| | | TM-129 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series) | | | | < CONNECTOR > | |
| | | < CAPACITOR > | | CN101 | 1-793-673-11 | CONNECTOR, BOARD TO BOARD 7P | |
| C131 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | CN103 | 1-815-383-11 | CONNECTOR, FPC/FFC 15P | |
| C132 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | | | | < DIODE > | |
| | | < CONNECTOR > | | D101 | 8-719-071-15 | DIODE HZM6.8ZWA1TL | |
| CN131 | 1-766-723-11 | CONNECTOR, BOARD TO BOAR 3P | | D102 | 8-719-071-15 | DIODE HZM6.8ZWA1TL | |
| | | TS-154 BOARD, COMPLETE ***** (Ref. No. 2, 000 Series) | | D103 | 8-719-071-15 | DIODE HZM6.8ZWA1TL | |
| | | < PHOTO INTERRUPTER > | | D104 | 8-719-071-15 | DIODE HZM6.8ZWA1TL | |
| PH101 | 8-749-017-89 | IC SPI-237 | | | | < FERRITE BEAD > | |
| | | < TRANSISTOR > | | FB101 | 1-414-553-11 | FERRITE 0uH | |
| Q101 | 8-729-120-28 | TRANSISTOR 2SC2412K-T-146-QR | | FB102 | 1-414-553-11 | FERRITE 0uH | |
| Q102 | 8-729-120-28 | TRANSISTOR 2SC2412K-T-146-QR | | | | < IC > | |
| | | < RESISTOR > | | IC101 | 8-759-667-17 | IC L79M05TLL-SONY-TL | |
| R101 | 1-216-043-00 | RES-CHIP 560 5% 1/10W | | IC102 | 6-701-820-01 | IC LA73053-TLM-E | |
| R102 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | | | | < JACK > | |
| R103 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | | J101 | 1-793-475-21 | JACK, PIN 2P (VIDEO OUTPUT) | |
| R104 | 1-216-095-00 | METAL CHIP 82K 5% 1/10W | | J102 | 1-793-445-11 | JACK, PIN 3P (COMPONENT VIDEO OUTPUT) | |
| R105 | 1-216-095-00 | METAL CHIP 82K 5% 1/10W | | J103 | 1-694-484-21 | TERMINAL, S (2P.V) (S VIDEO OUTPUT) | |
| | | | | J104 | 1-764-188-21 | JACK (SMALL TYPE) (DIA. 3.5) (S-LINK) | |
| | | | | | | < SHORT > | |
| | | | | JR101 | 1-216-295-11 | SHORT CHIP 0 | |
| | | | | JR102 | 1-216-295-11 | SHORT CHIP 0 | |
| | | | | JR103 | 1-216-295-11 | SHORT CHIP 0 | |
| | | | | | | < TRANSISTOR > | |
| | | | | Q105 | 8-729-421-19 | TRANSISTOR UN2213-TX | |
| | | | | Q106 | 8-729-424-08 | TRANSISTOR UN2111-TX | |
| | | | | Q107 | 8-729-424-08 | TRANSISTOR UN2111-TX | |
| | | | | | | < RESISTOR > | |
| | | | | R108 | 1-216-073-00 | RES-CHIP 10K 5% 1/10W | |
| | | | | R112 | 1-216-073-00 | RES-CHIP 10K 5% 1/10W | |
| | | | | R113 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R114 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R115 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R116 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R117 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R118 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R119 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| | | | | R120 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |

| Ref. No. | Part No. | Description | Remark | | |
|----------|--------------|-------------|--------|------|-------|
| R121 | 1-216-021-00 | METAL CHIP | 68 | 5% | 1/10W |
| R122 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R123 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R124 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R125 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R126 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R127 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R128 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R129 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R130 | 1-216-295-11 | SHORT CHIP | 0 | | |
| R132 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R133 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R134 | 1-216-049-11 | RES-CHIP | 1K | 5% | 1/10W |
| R135 | 1-208-782-11 | METAL CHIP | 1K | 0.5% | 1/10W |
| R136 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W |
| R137 | 1-216-073-00 | RES-CHIP | 10K | 5% | 1/10W |

< SWITCH >

| | | |
|------|--------------|------------------------------|
| S101 | 1-692-989-11 | SWITCH, SLIDE (SCAN SELECT) |
| S102 | 1-692-989-11 | SWITCH, SLIDE (COMMAND MODE) |

1-468-695-11 POWER BLOCK (ZSSR113M)

(Ref. No. 1, 000 Series)

< FUSE >

| | | |
|--------|--------------|----------------|
| △ F101 | 9-885-025-02 | FUSE (2A/250V) |
|--------|--------------|----------------|

< FUSE >

| | | |
|---------|--------------|------------------|
| △ IP201 | 9-885-025-05 | FUSE (1A/125V) |
| △ IP301 | 9-885-025-04 | FUSE (1.6A/125V) |
| △ IP302 | 9-885-025-03 | FUSE (2A/125V) |
| △ IP401 | 9-885-025-05 | FUSE (1A/125V) |

MISCELLANEOUS

| | | |
|-------|--------------|--------------------------------|
| 108 | 1-757-231-11 | CABLE, FLEXIBLE FLAT (FLS-003) |
| 109 | 1-476-273-11 | ENCODER, ROTARY |
| △ 252 | 1-468-695-11 | POWER BLOCK |
| △ 256 | 1-757-571-11 | CORD, POWER |
| 306 | 1-757-232-11 | CABLE, FLEXIBLE FLAT (FTD-001) |
| 307 | 1-757-234-11 | CABLE, FLEXIBLE FLAT (FDD-003) |
| 360 | 1-757-233-11 | CABLE, FLEXIBLE FLAT (FLC-002) |
| M1 | 1-541-632-11 | MOTOR, DC |

HARDWARE LIST

| | | |
|----|--------------|-----------------|
| #2 | 7-628-253-90 | SCREW +PS 2.6X4 |
|----|--------------|-----------------|

| Ref. No. | Part No. | Description | Remark |
|----------|--------------|-------------------------------|--------|
| | | ACCESSORIES | |
| | | ***** | |
| | 1-477-328-11 | REMOTE COMMANDER (RMT-D149A) | |
| | 1-823-364-21 | CORD, CONNECTION | |
| | | (STEREO AV CABLE 1.5m) | |
| | 3-071-119-11 | CASE, BATTERY (for RMT-D149A) | |
| | 3-077-145-11 | MANUAL, INSTRUCTION (ENGLISH) | |
| | 3-077-145-21 | MANUAL, INSTRUCTION (FRENCH) | |
| * | 3-694-922-01 | SHEET, PROTECTION | |

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

